Users are grappling with piecemeal
products to manage their intranets.
Pullout section follows page 44.

Web site review. Bank of Amer
Fargo are among the first banks
online checking. The Internet pag

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Beanie Babies blitz IS

▸ *Toy maker writes blank check to update order entry system*

By Randy Weston

Toy maker's order entry and phone systems fall prey to ferocious fad demand, prompting overhaul

BEANIE BABIES. Kids can't get enough of them. Parents can't find them. And retailers can't keep them in stock.

Overwhelmed by thousands of calls per day from retailers seeking any of its 99 fist-size beanbag beasts, Oak Brook, Ill.-based Ty, Inc. was forced to slash by two-thirds the amount of time it had planned to spend revamping its order entry system.

With revenue starting to rocket and the need for a new system rising, frantic Ty executives offered up what many information systems departments pray

Beanie Babies, page 111

Hackers hitch ride on E-mail; lack of security opens door

By Barb Cole-Gomolski

LAST FEBRUARY, a large retailer noticed something bizarre on its Microsoft Corp. Mail system. Users were getting messages from people they knew with headers that said, "You have got to read this!" But when opened, the messages launched the Sharefun macro virus.

Sharefun invades a user's electronic mail and reproduces by sending virus-laden messages to three people in that user's personal E-mail directory.

Cases like this are becoming more common because of the growing volume of Internet E-mail and the proliferation of macro viruses. "Many of the viruses that are coming down now are hidden in the text of messages or attachments," said Mike Gentile, vice president and director of information technol-

Hackers, page 14

Users shrug off Office 97 fears, migrate in droves

By Lisa Picarille

SELECTING A SUITE of productivity applications is about as simple as deciding whether it's better to lease or buy a car.

But in just four months, more than 8 million users have bucked conventional wisdom and waded through the options, formulated deployment plans, upgraded hardware, evaluated file incompatibility issues and bit the bullet and bought Microsoft Corp.'s Office 97.

Just who is converting to Office 97? A *Computerworld* survey of 150 users found that 76%

Office 97, page 16

Bell legacy systems plague deregulation

▸ *Massive overhaul to open up local telco networks*

By Kim Girard and Robert L. Scheier

PACIFIC BELL spent more than $100 million last year to kick off its mission-critical IS conversion effort. The project involves more than 1,000 people working to modify at least 100 computer systems.

No, this isn't the year 2000 problem. It's worse.

Pacific Bell and the other regional Bell operating companies face the huge task of re-engineering their decades-old systems to meet federal deadlines for opening local telephone networks to competition.

IS effort, page 28

☞ What does **electronic commerce** mean to you?

If you answered blood, sweat, dollars and opportunity, then ***Emmerce***, our new magazine for electronic commerce strategists, is for you. In this issue (following page 50), read about the new middlemen and good search techniques. For follow-up stories, forums and more, visit www.computerworld.com/emmerce.

INSIDE THIS ISSUE

UPFRONT

Sizing up IBM

As IBM's remarkable recovery gained momentum with its earnings report last week, news stories carried the familiar warnings that the company's growth continues to lag the industry and IBM doesn't dominate any of the high-growth markets in which it competes.

With all due respect to the skeptics, they're completely missing the point.

IBM's failure to own emerging markets couldn't be less important to the company's turnaround. Nor does growth count for much in an industry where you're twice as big as everybody else. After all, IBM's revenue was still up by an amount that exceeded the total size of all but the biggest companies in the industry. The skeptics simply miss the point when they complain that IBM doesn't fit the industry mold, because IBM's business model isn't the same as everybody else's.

The most profound difference between the IBM of today and the company of 1993 is that the old IBM tried to fight leadership battles in every market. It lost all of them. Under Lou Gerstner, IBM has been content to be No. 2 or 3 in any market as long as it's No. 2 or 3 in a lot of markets. You don't have to lead in, say, Unix, when you have more than $15 billion in AS/400 business to fall back on.

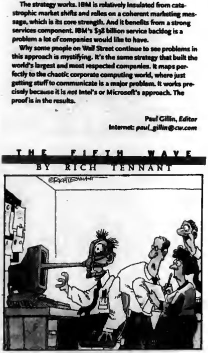
IBM doesn't need to be dominant to be successful.

The strategy works. IBM is relatively insulated from catastrophic market shifts and relies on a coherent marketing message, which is its core strength. And it benefits from a strong services component. IBM's $38 billion service backlog is a problem a lot of companies would like to have.

Why some people on Wall Street continue to see problems in this approach is mystifying. It's the same strategy that built the world's largest and most respected companies. It maps perfectly to the chaotic corporate computing world, where just getting stuff to communicate is a major problem. It works precisely because it is *not* Intel's or Microsoft's approach. The proof is in the results.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT



"ALL RIGHT, STEADY EVERYONE. MARGO, GO OVER TO TOM'S PC AND PRESS 'ESCAPE'...VERY CAREFULLY."

E-mail Rich Tennant at the5wave@tiac.net

Virus hoaxes make IS sick

▸ *Warnings, carried by E-mail, spread hysteria and waste resources*

By Sharon Machlis

PLAGUED BY increasing numbers of E-mail messages that carry bogus warnings about nonexistent viruses, systems administrators are starting to fight back.

The bogus warnings "are annoying and consumptive of resources," said Mark Juric, production systems team leader at Platinum Technology, Inc. in Oakbrook Terrace, Ill. "This is why we are working on a policy against them."

The electronic-mail messages usually warn of dire consequences — such as all files on a hard drive being deleted or the system being damaged in some way — if a user simply reads an "infected" text message. The hoax messages typically urge recipients to pass on the information to everyone they know — supposedly as a way to stop the dangerous virus from spreading, but that actually propagates the hoax.

NO LAUGHING MATTER

The hoaxes are no joke to information systems departments, because they clog networks and waste help desk time.

"Distribution lists on these things, by the time I see them, include sometimes hundreds of users," said Gary W. Parker Sr., systems and network administrator at Johnson & Johnson Clinical Diagnostics in Rochester, N.Y. And that represents "just one down-line in the pyramid of the message's spread."

Platinum's new rules warn users not to send companywide E-mail or voice messages about possible viruses. Instead, Platinum asks users to contact a help desk hot line or internal newsgroup with the information.

"They will be warned if they do it once," Juric said. "They may be terminated if they do it again."

Although few companies are making such rules part of their written policies, a number of IS departments are telling users not to pass on virus warnings to multiple users and to check first with someone in IS, said Charles Rutstein, a senior consultant at Price Waterhouse.

But that can end up dumping a substantial new workload on already harried systems administrators.

"Dealing with a succession of new hoaxes is wearing," said David Harley, a support and security analyst at the Imperial Cancer Research Fund in London.

"There isn't any hoax-virus scanning software to deal with these things automatically," he said.

Each claim must be verified or disproved, the recipient of the warning message told whether it is true and other users and IS staff notified, Harley said.

The first hoax is believed to have been launched on the Internet in 1988, but the problem escalated in the past few years as electronic-mail use mushroomed to include more unsophisticated users who are more likely to pass the warnings along.

Organizations that deal with real viruses and other hacking attacks now spend a substantial amount of time tracking down hoaxes. "We get just killed with E-mails and phone calls when a new hoax comes out," said Jonathan Wheat, senior antivirus laboratory analyst at the National Computer Security Association in Carlisle, Pa. Almost half the laboratory's time is used to disseminate hoax information.

The Computer Incident Advisory Capability (CIAC) team at the University of California Lawrence Livermore National Laboratory was getting about 10 hoax-related calls for each report about an actual virus.

It is one of several organizations that has posted a hoax page on its World Wide Web site (see box above). ☐

Common Internet virus hoaxes

- **AOL4FREE**
- **Deeyenda**
- **Good Times**
- **PENPAL Greetings**

All claim that opening an E-mail message with those subject lines will destroy files on a hard drive or cause system damage. Although these are false, this month the CIAC found AOL4FREE.com, a Trojan horse that will do this type of damage when opening the program.

WWW

Web sites that track virus hoaxes:

►Computer Incident Advisory Capability team, U.S. Department of Energy: ***ciac.llnl.gov/ciac/CIACHoaxes.html***

►Air Force Computer Emergency Response Team: ***www.afcert.kelly.af.mil/hoaxes.html***

►National Computer Security Association: ***www.ncsa.com/virus/alerthoax.html***

►IBM Antivirus: ***www.av.ibm.com/BreakingNews/HypeAlert/***

►McAfee: ***www.mcafee.com/support/hoax.html***

►Dr. Solomon's: ***www.drsolomon.com/vircen/mailhoax.html***

►Symantec: ***www.symantec.com/avcenter/hoax.html***

►Data Fellows ***www.datafellows.fi/news/hoax.htm***

Tools could make or break network computers

▸ *Administration systems key to wide adoption of thin-client platforms*

By April Jacobs

IBM AND OTHERS are paving the way for large-scale adoption of network computers with the release of management and productivity software designed to run on thin clients. Users and analysts agree that if the software packages deliver on functionality, network computers could give PCs a run for their money.

The goal of PC management software packages such as Microsoft Corp.'s Systems Management Server and Zero Administration for Windows — the management software underpinning for the NetPC — is to lower the cost of running PC- and server-based systems. However, they can't quite carry out that promise because network administrators still must perform software installations and upgrades and download patches and fixes. All of these tasks — even when automated — consume hundreds of manpower and training hours.

A recent survey of 2,000 users shows 60% would trade in their PCs for network computers if:

- **Software incompatibility problems were reduced**
- **Devices crashed less**
- **Network computers were powerful enough to run needed applications**

Source: Datapro Information Services Group, Inc., Delran, N.J.

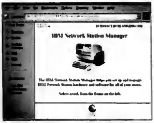
By contrast, in the thin-client computing model, all applications reside on and are executed from a central server. This eliminates the need to perform repetitive software downloads to individual desktops. As a result, administrators can truly support, troubleshoot and administer network computers from a single location.

For example, IBM's Network Station Manager and Network Station Browser, both announced this week, allow network managers to remotely configure an end user's virtual desktop — which is located on the server — based on the worker's needs. Hundreds or thousands of network computer desktops can be created and run from a single location.

TOUGH SELL

Using the Network Station Browser, management functions, such as general updates, application deployment, designating printers and even changing cursor speeds for a user's keyboard, can be done from any networked location — office, home or on the road.

But Dave Cappuccio, an analyst at Gartner Group, Inc. in Stamford, Conn., said he still needs to see business productivity applications ported to network computers before he is convinced that widespread adoption is around the corner.



IBM's Network Station Manager lets network managers remotely configure hundreds or thousands of network computers from a single location

Cappuccio cited network computer applications such as Java versions of Ottawa-based Corel Corp.'s WordPerfect and Cambridge, Mass.-based Lotus Development Corp.'s Domino, which is due later this year, as falling short of the mark in their initial network computer implementation. However, they will help pave the way to success "if they provide users with comparable performance and stability" to PCs, Cappuccio said.

"If that happens, [network computers] will move out of the niche architecture of replacing terminals to [really] compete with PCs," he added.

User interest is already picking up according to the latest survey on the topic from Datapro Information Services Group, Inc. in Delran, N.J. The survey of 2,200 PC end users, including systems professionals, executives and data-entry workers, found that more than 60% would be willing to switch to network computers if the systems had a friendly interface and were easy to use.

Numbers like that are easy to understand for chief information officers such as Donovan Resh at Retired Persons Services, Inc. in Reston, Va. Resh has already switched more than 1,000 users from terminals and PCs to @Workstations from HDS Network Systems, Inc. in King of Prussia, Pa.

"I can run the same applications that I run anywhere else," Resh said. He noted that by using Santa Clara, Calif.-based Insignia Solutions, Inc.'s NTrigue operating system — a network computer version of Windows NT endorsed by Microsoft — Windows applications are accessible. Some applications required tweaking, Resh said, but most ran smoothly from the start. □

Hitachi upgrade extends mainframe edge over IBM

By Tim Ouellette

NEXT MONTH, Hitachi Data Systems Corp. will shoot for the sky when it boosts performance of its Skyline and Pilot mainframe systems.

Sources said they expect Skyline to increase its 120-MIPS mainframe to 180 MIPS by year's end with this announcement. That far exceeds IBM's G3 series of CMOS mainframes, which currently hit 45 MIPS, although a 60-MIPS system is expected later this year.

MAINFRAME SYSTEMS

The Santa Clara, Calif., company is expected to expand the breadth of the Skyline family and reassure new customers that Skyline is here to stay, analysts said.

"It is a commitment from Hitachi to continue the Skyline family and expand it, since there was some speculation initially that Skyline was a onetime deal," said John Young, an analyst at The Clipper Group, Inc. in Wellesley, Mass.

Skyline is already the most powerful mainframe system on the market, combining newer CMOS processor technology with the high-powered, water-cooled processor technology of past mainframes. Pilot is an all-CMOS line similar to IBM's G3 systems.

The Social Security Administration (SSA) in Baltimore, a Skyline site since last fall, may need the new upgrade capabilities.

"We are not as rich in mainframe capacity as we would like to be right now," said Robert Vaccaro, SSA's year 2000 project coordinator.

Because the agency has used roughly 2,200 MIPS of its 3,000-plus MIPS contract with HDS, either a Skyline upgrade or the purchase of a smaller Pilot system is possible, Vaccaro said.

GOING SMALL

HDS' May announcement will also reveal the company's plans to offer smaller Skyline engines, which should broaden the product's appeal beyond just large data centers.

But the high-end market is Skyline's sweet spot, helping HDS grab 22% of the mainframe market in 1996, up from only 7% in 1995. □

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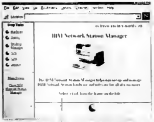

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VIRTUAL TEAMS, REAL CHALLENGES

Virtual teams address the needs of a new work environment in the wake of downsizing and mergers. But they aren't easy to assemble and manage. And they are far less productive than "real" teams. For some tips on how to make virtual teams more effective, turn to **Managing**, page 70.

MARK ARMENTROUT, ARCO Alaska: Virtual teams help his company apply technical knowledge around the globe.

[illegible] base. [illegible], page 49

In this issue

Hardware makers set pace on NT scalability

By Jaikumar Vijayan

SEVERAL HARDWARE vendors are accelerating their efforts to make Windows NT servers more enterprise-ready. Now all Microsoft Corp. has to do is upgrade the software.

The new systems are aimed at dispelling user concerns that NT doesn't effectively scale beyond four processors.

For example, Tandem Computers, Inc. in Cupertino, Calif., next week will demonstrate a database application on a cluster of 64 Intel Corp. processors running NT Server.

Similarly, Unisys Corp. in Blue Bell, Pa., this week will announce a 10-processor NT server that supports 8G bytes of memory and up to 52G bytes of internal storage capacity. And Data General Corp. in Westboro, Mass., last week announced a six-processor server. The Unisys and DG boxes will ship in June, but 10-way support on the Unisys box won't be available until early next year.

The announcements are timed to precede Microsoft's "Scalability Day" on May 20, when the company will demonstrate clustering and enterprise-class options for Windows NT.

In theory, the increased scalability and processing power offered by these technologies will allow companies to mount large database and business-critical applications on NT servers.

"You want something that is scalable so that you don't have to go out and buy a new server every time you add a new application," said Tom Renolds, a technical support manager at Phoenix Memorial Hospital in Phoenix.

But it will be some time before operating system and application support become available to take full advantage of the additional horsepower.

"Windows NT 4.0 really is only optimized to support up to four processors," said Laurie McCabe, an analyst at Summit Strategies, Inc. in Boston. "So until Windows NT 5.0 ships, it really is debatable what benefits these systems buy." NT 5.0 is expected to ship by mid-1998.

American Express Travel Services in Phoenix, which uses a quad-processor Unisys NT server that supports up to 150 smaller file servers, is considering upgrading. But Russell Tate, a senior software specialist, said, "Right now, I am not sure what improvement additional processors will bring."

Several vendors have decided not to wait for NT 5.0; they are squeezing additional performance out of Windows NT 4.0.

Dayton, Ohio-based NCR Corp., with its Octascale memory controller, and Irvine, Calif.-based Corollary, Inc., with its Profusion chip set, offer technologies that let companies upgrade standard four-processor Pentium Pro systems to eight-way servers.

Meanwhile, vendors are offering middleware and clustering schemes that allow users to cobble together scalable and highly available NT configurations: Digital Equipment Corp. offers Clusters for Windows NT, DG offers Clusters-in-a-box and Tandem offers ServerNet.

"Some of these technologies do increase performance and availability," said Jerry Sheridan, an analyst at Dataquest in San Jose, Calif. "But a lot will depend on how steep the price premiums are . . . and what kind of support they will get from Intel and Microsoft." □

How some vendors are scaling Windows NT servers

Technology	Vendor	Description
Clusters for Windows NT	Digital	Clustering technology
Octascale memory controller	NCR	Upgrades four-way server to eight-way
Profusion chip set	Corollary	Upgrades four-way server to eight-way
ServerNet/ ServerWare	Tandem	Cluster interconnect, middleware for scalable servers

Chevron is CORBA's biggest win; will link users to seismic data

By Sharon Gaudin

IT'S NO SURPRISE that one of the country's largest petroleum suppliers is building a new pipeline. But this piece of plumbing will be constructed out of CORBA technology, carrying information instead of crude oil.

Houston-based Chevron Petroleum Technology Co. plans to link engineers' desktop systems and World Wide Web browsers to geographical, seismic and historical drilling information that is difficult to access because it is stored in databases spread across myriad servers. To help sidestep the complexities of tying those disparate servers together, Chevron has given the nod to Common Object Request Broker Architecture (CORBA), the cross-platform middleware standard.

The deployment ranks among the largest examples to date of a company building its system on industry-standard object middleware.

"CORBA is the only technology that can provide us easy access to all our different databases," said Clay Harter, a senior research consultant at Chevron Petroleum Technology, the information technology division of Chevron Corp.

CROSS-PLATFORM MIDDLEWARE

Ensuring cross-platform and interoperability capabilities are the two big promises of CORBA. And if supporting vendors deliver on that, it should mean fewer worries for information systems managers about buying incompatible systems. Training costs should also shrink, along with the amount of time spent bridging vendors' products to one another.

WINDOWS-CENTRIC

Conversely, CORBA's main rivals, Microsoft Corp.'s ActiveX and Distributed Component Object Model (DCOM) middleware, are Windows-centric (see story at right, below).

With that in mind, Chevron has just embarked on a $2.5 million, two-year project to build the Orbix object request broker in to its core system for exploration and production. That system, from Iona Technologies, Inc. in Cambridge, Mass., serves 2,000 to 3,000 users. It runs on Unix-based hardware from Sun Microsystems, Inc., IBM and Digital Equipment Corp. If the CORBA technology works well in this division of Chevron, it may be picked up in others, Harter said.

Object request brokers, which transparently handle communications between software objects on a network, are the backbone of a CORBA-based system. CORBA is essentially the translator that enables components, applications and databases to communicate easily with one another across different operating systems. The middleware technology is managed by the Object Management Group (OMG) in Framingham, Mass., a consortium of more than 700 vendors and users.

Frank Delargy, a senior information systems manager at Polaroid Corp. in Waltham, Mass., is dealing with a situation fairly indicative of the entire market today. Polaroid is weighing both DCOM and CORBA, with two separate camps of developers pushing their favorite technology.

"Some of them are saying we should leverage our current environment, which is based on Microsoft products, and move away from the cross-platform issues as a result," Delargy said. "But some people are excited about the fact that CORBA is cross-platform."

Take Colonial Savings in Forth Worth, Texas, for example. Frank Manci, a network technical manager, said CORBA may help improve customer service by tying information stored on his servers to the bank's customers, who are spread across much of the southern part of the country. With an object request broker to link the Web to his databases, customers could use their browsers to pull up data on interest rates, loan applications and other information. Currently, they get that information after waiting in line at the bank.

And at Cummins Engine Co. in Columbus, Ind., David Bowser, a distributed information architect, uses CORBA to provide his customers access over the Web to his databases, which sit on a variety of servers. His customers now can call up information on their orders through a browser instead of calling a representative on the telephone. "It's another way to keep connected with our customers," Bowser said. □

Senior writer April Jacobs contributed to this story.

The CORBA alliance has planned the following initiatives:

- **It will develop a common naming scheme so products from different vendors can work together easily.**
- **Sun will integrate the Internet Inter-Orb Protocol (IIOP) into its operating system and servers by the end of the year.**
- **This week, Oracle will add its own CORBA ORB to Version 3 of its Web Application Server.**
- **Oracle's tools will have full CORBA support before midyear. Oracle's applications will support CORBA before the fourth quarter.**
- **Oracle8 database will support CORBA next year.**
- **Netscape will build CORBA-based IIOP support into the next version of Navigator.**

Alliance pumps up profile

Chevron is just one of the many companies that has chosen CORBA over Microsoft's Windows-centric DCOM object middleware now that IBM, Netscape Communications Corp., Sun and Oracle Corp. have teamed up to back the OMG standard.

Users such as Polaroid Corp., GTE Data Services, Colonial Savings F.A., Amoco Corp. and Prudential Insurance .Company of America are considering CORBA implementations.

A few weeks ago, the four-vendor alliance promised to strictly adhere to specific CORBA standards, which they had embellished in the past to grab market advantage. With this new adherence to the middleware standard, company executives promised that their products — everything from network computers and servers to software — would seamlessly work together [CW, March 17].

"This alliance definitely is making everybody play wait-and-see," said Larry Hegerty, a senior systems engineer at GTE Data Services. "CORBA seemed to be dying on the vine a little bit until a few weeks ago. We're trying to ride the fence until the jury comes in as to who will dominate. And maybe nobody will. Maybe it will be a CORBA/DCOM world."

Many industry watchers said the renewed support for CORBA was a direct challenge to Microsoft and its ActiveX and DCOM technologies. Those products are currently Windows-specific, although Microsoft promises that third parties will build Unix versions in the future. Chevron, for example, runs DCOM only in its divisions where all the machines run Windows 95 and NT.

— Sharon Gaudin

Microsoft issues patch that turns Outlook into Internet mail package

By Barb Cole-Gomolski

MICROSOFT CORP. last week issued a patch for its Outlook mail and groupware client that will make the software behave more like an Internet mail package.

"Outlook wasn't designed as an Internet mail package, but [this patch] gives you a lot of the things you need to send mail over the 'net."

– Vincent Averello, Infomagic

Outlook is the client for Microsoft's Exchange messaging server.

But a lot of people use it as a stand-alone application for Internet electronic mail, according to Microsoft officials.

The patch will let end users rely on Outlook as their only E-mail client and avoid the need for a separate Internet mail package on their machines, users said.

"We had a lot of problems with Outlook when it first came out," said Paul Thurrott, webmaster at San Francisco-based Big Tent Media Labs, a World Wide Web design firm. "We were able to use Outlook internally and send each other mail, but we had problems when we sent mail to people outside the company," he said.

The problem was that Outlook transmitted an unwanted file, called Winmail.dat, along with every message sent via the Internet, Thurrott explained.

The patch fixes the Winmail.dat glitch, plus the bug that made blind carbon-copy recipients of E-mail visible to all recipients.

In addition, the Outlook patch will let users access multiple Post Office Protocol 3 E-mail accounts from one client.

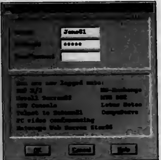
It also adds support for several Internet mail conventions, such as line wrapping and marking original text with angle brackets when replying to messages.

DOUBLE-DUTY

"Outlook wasn't designed as an Internet mail package, but [this patch] gives you a lot of the things you need to send mail over the 'net," said Vincent Averello, president of Infomagic, Inc., a systems integrator in Bayonne, N.J.).

Outlook shipped in January as part of the Office 97 bundle. It is also included with Exchange 5.0 and available as a stand-alone product.

Scott Gode, Outlook product manager at Microsoft, said about 8 million copies of Outlook were sold as part of Office 97, but he couldn't provide total sales figures for Outlook. □



Intranet advocates: Don't 'push' users; let 'em browse

▸ *Time-saving benefits may not jibe with remaining competitive*

By Justin Hibbard

USERS ARE FINDING that "push" technology's promise to cut information overload may not jibe with an intranet's promise to increase information availability.

Push technology products were designed to reduce time spent searching on the Internet or an intranet by automatically delivering information to users' desktops.

Companies can use push products to set up channels to transmit only information deemed relevant to workers.

But discouraging employees from exploring an intranet could counteract the benefits of the system, according to Rob Berkley, senior vice president of information systems and technology at publisher Simon & Schuster, Inc. in New York.

"Our business is creativity," Berkley said. "If I was to sit down and try to figure out what should be pushed throughout the company, I would limit the company's ability to remain competitive in the market."

Simon & Schuster relies on its employees' original ideas to remain competitive, and employees may form those ideas through chance discoveries on the company's intranet, Berkley said. A tidbit that inspires an employee to start a successful marketing campaign may be the last piece of information an IS manager would consider broadcasting.

> **"If I was to sit down and try to figure out what should be pushed throughout the company, I would limit the company's ability to remain competitive in the market."**
>
> **– Rob Berkley, Simon & Schuster**

However, at most companies that use push technology, IS professionals don't decide what information to push.

Clothing maker Fruit of the Loom, Inc. in Chicago, for example, has organized a group of 18 intranet coordinators from different departments. With the webmaster, they decide what information to push via PointCast I-Server, a push product from PointCast, Inc. in Cupertino, Calif.

EMPLOYEES KNOW BEST?

But employees may not want coordinators to decide what information they see, according to Michael Rudnick, a principal at Cognitive Communications, Inc., a consultancy in New York that has designed intranets for Fortune 100 companies.

"[Employees] don't want the corporation to say, 'We know what's better for you than you do, and we've put together 15 channels for you to choose from,'" Rudnick said.

However, some IS managers said corporations have a right to limit intranet access where it is appropriate.

SELECTIVE PUSHING

"I don't think an intranet is designed to let people have unlimited access to anything they want," said David Stoltzfus, a principal of advanced technologies at financial services company The Vanguard Group, Inc. in Valley Forge, Pa. "I think you can make a business case [for push technology] in certain types of applications where it makes sense."

For example, push technology might be useful for a receptionist who doesn't need to wade through information about mutual funds posted on Vanguard's intranet, Stoltzfus said.

Of course, companies can use a combination of push technology and browsing, but they may not gain all of the time-saving benefits that push technology promises.

In fact, using both might encourage more browsing, because a pushed message could prompt employees to search for additional information, said Edward Glassman, director of technical strategies at Pfizer Corp., a New York pharmaceutical company.

Companies that use both can eliminate some browsing by pushing notices that pertain to a broad audience, such as announcements of companywide policy, said Joan Carol Brigham, an analyst at International Data Corp. in Framingham, Mass. But creating a push channel for every interest in the company is impossible, she said. ☐

How push channels work

1. Administrators set up channels on push servers
2. Internal content creators publish content to channels on the server
3. The server receives some channel content from external providers
4. Users subscribe to channels from clients
5. Clients issue periodic requests for updates from channels on server

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SHORTS

NSF to dump domain duties

The National Science Foundation (NSF) said the Internet has grown beyond its scientific roots, and it wants to get out of the domain-name business. Agency officials said they have no plans to renew a domain-name management award given to Network Solutions, Inc. in Herndon, Va., when it expires next March. The foundation and Network Solutions may agree to end that practice earlier if other registration methods are implemented. A United Nations agency, meanwhile, said an agreement, due to be signed this week, will add seven new extensions — .firm, .store, .web, .arts, .info, .nom and .rec — to go along with .com, .org, .gov, and .net.

Goodyear CIO is marketing vet

The Goodyear Tire & Rubber Co. has chosen Debra Walker, a marketing and retail veteran rather than an information systems professional, to become its first chief information officer. She previously was Goodyear's vice president of retail stores, North America Tires, and has held a variety of marketing positions.

Justice OKs Bell/Nynex merger

The Department of Justice last week approved the merger of Bell Atlantic Corp. and Nynex Corp., concluding that the combination of the two Baby Bells doesn't violate antitrust laws. It is the second-largest merger in U.S. history. Bell Atlantic's takeover of Nynex will create a telephone colossus that controls 38 million telephone lines from Maine to Virginia.

Encryption for Java

RSA Data Security, Inc.'s encryption algorithms will soon be available for Java developers. The Redwood City, Calif., company's JSafe tool kit allows implementation of RSA-based public-key cryptography within Java and will soon support the Secure Sockets Layer protocol — designed for more secure World Wide Web transactions. It is slated for release this quarter, with an exportable version due next quarter.

Oracle to ship Web app server

Oracle Corp. this week will release the latest version of its Web Application Server. The Advanced Edition of Oracle's Web Application Server Version 3 runs on Sun Microsystems, Inc.'s Solaris server and has a built-in Common Object Request Broker Architecture. It costs $3,995 per node and is expected to be available on other platforms within 60 days.

Symantec sues McAfee

Symantec Corp. is suing McAfee Associates, Inc. for allegedly stealing software code from Symantec's Norton CrashGuard and reusing it in a McAfee product released last month. In its lawsuit, Symantec is seeking a recall of McAfee's PC Medic 97 as well as monetary damages. Cupertino, Calif.-based Symantec said PC Medic 97 contains "significant portions" of the same machine language instructions as CrashGuard, which shipped in September. McAfee, in Santa Clara, Calif., declined to comment on the suit at this time.

NCR pushes E-commerce

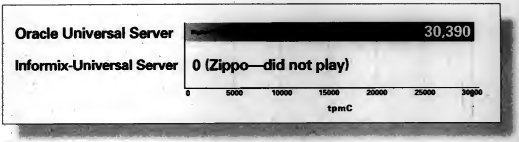
NCR Corp. this week will announce its Internet Electronic Commerce package of services aimed at helping corporations build intranets and extranets for World Wide Web-based commerce. The services include an NCR Intranet Access server for entry-level intranet deployment, a high-availability Web cluster server for Windows NT with fail-over and recovery software and new Web-enabled access to data warehouse information.

SHORT TAKES U.S. Robotics Corp. in Skokie, Ill., propelled by strong sales of its 56K bit/sec. modems, posted record second-quarter earnings of $73.5 million. ... The Baan Co. last week posted first-quarter profits of $12.3 million, up 184% from $4.3 million earned in the same quarter last year. ... Electronic Data Systems Corp. suffered an 11% drop in net income, to $194 million, for the first quarter ended March 31, prompting the Plano, Texas-based services giant to launch a global cost-cutting program. ... Islandia, N.Y.-based Computer Associates International, Inc. last week announced Workgroup OpenIngres, a database management system bundle for workgroup server platforms that costs $235 per seat.

Oracle vs Informix
Benchmark Leader vs Bench Warmer

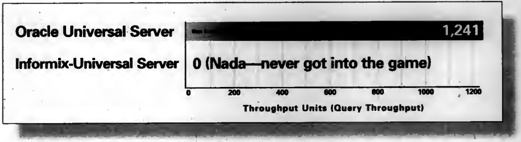
TPC-C Performance

The TPC-C benchmark is the industry standard test for measuring database On-Line Transaction Processing (OLTP) performance.



TPC-D Performance

The TPC-D is the industry standard benchmark for measuring query performance on large complex databases.



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TPC-C results as of March 21, 1997. Oracle7 v.7.3.3 on a Digital AlphaServer 8400 TruCluster configuration, four systems with 8 CPUs each, 30,390 tpmC at $305/tpmC. TPC-D results as of March 21,1997. Availability, May 1, 1997. Oracle7 v.7.3.3 on a Sun Starfire Ultra Enterprise 10000, 300 GB, 2009.5 QppD, 1241.9 QthD, $3,326 QphD. All other company and product names are trademarks of their respective owners.

Novell tool upgrade curtails 'sneakernets'

By Patrick Dryden

DISTRIBUTING SOFTWARE upgrades to end users is about to get easier and cheaper for managers of networks based on Novell Directory Services (NDS).

Novell, Inc. next week will offer the ranks of NetWare-based organizations a better Novell Application Launcher for free.

Version 2.0 relies on NDS to automate the remote installation process and fix problems that previously required costly visits to each PC station.

"Now we can update users' desktops almost instantaneously, with no local changes needed," said beta tester Jim Willeke, regional MIS director at KPMG Peat Marwick in Montvale, N.J.

The revamped tool should hold down the cost of managing 200 applications needed by 14,000 users, Willeke said. By handling software access centrally, the help desk could take over about 15% of the calls that require field support, he said.

At Western Washington University, overall savings from Novell Application Launcher 2.0 could exceed $100,000 per year, according to beta tester Dan Brunner, a network engineer at the school in Bellingham, Wash.

The Administrative Computer Services department won't have to hire more technicians or pay as much overtime by eliminating the need to spend hours at 3,000 PCs, Brunner said.

JOIN THE CROWD

Novell is far from alone in this niche. Many other products help reduce the costs and hassles of software distribution to desktop PCs.

Novell Application Launcher catches up with competitors in Version 2.0 by pushing files to those PCs and fully controlling registry configuration for the first time.

The key difference from other tools is Application Launcher's integration with NDS. That means managers don't have to buy separate distribution tools or maintain redundant databases — they just manage users and applications within NDS.

> "Now we can update users desktops almost instantaneously, with no local changes needed."

"This is easier than any other tool I've tested," said John Calvin, a senior network analyst at consultancy Network Therapist, Inc. in Toronto, Canada.

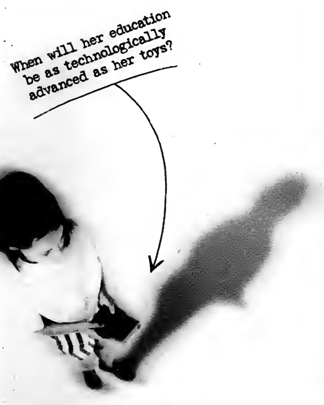
Calvin said Application Launcher allows quick software deployment, without scripts, by creating a template that links servers, applications and user groups. And NDS replicates its database to remove a single point of failure, he said.

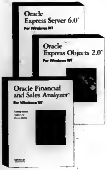
OS UPGRADES

Novell's tool focuses on updating applications and PC configurations, but it still doesn't help managers distribute operating system upgrades. Intel Corp. and MainControl, Inc. in Vienna, Va., are the latest vendors to tackle that problem.

Novell Application Launcher 2.0 will be available at www.novell.com. It is free until November to users of NetWare 4.x, IntranetWare and ManageWise.

Managers of other networks may be able to apply the tool next year. Novell officials in Orem, Utah, are pushing NDS as a universal directory and said it should run on Windows NT and 75% of Unix platforms by 1998.□


When will her education be as technologically advanced as her toys?


Oracle
Express Server 6.0
For Windows NT
Oracle
Express Objects 2.0
For Windows NT
Oracle Financial and Sales Analyzer
For Windows NT

Users brush off NT security flap

▸ *But Microsoft urged to do a better job of alerting users to access points*

By Laura DiDio and Sharon Machlis

WHEN STEVE SOMMER heard about the latest supposed security hole in Windows NT, his first reaction was to get upset — but not at Microsoft Corp.

"Microsoft is quick to respond to security issues and release fixes," said Sommer, vice president of MIS at Hughes, Hubbard & Reed, Inc., a New York law firm.

"I'm actually more upset that people are making a cottage industry out of finding holes in operating systems and applications in general," Sommer said.

"Anyone who looks hard enough can find a back door in any program. But more to the point, most of these sensationalized hacks presuppose that the would-be hackers have physical access to the Windows NT server," he griped. "I've secured all my servers."

Sommer's sentiments were shared by several major users, all of whom said they are largely unconcerned about the latest report of a potential security hole in NT.

This alleged back door could allow a hacker using the password "anonymous" to gain access to Windows NT Registries and to look up server resources.

Microsoft officials last week acknowledged the existence of the security hole and said customers this week can download a software patch on its World Wide Web site that will let users disable the facility.

Hughes Hubbard & Reed's Steve Sommer

"Anyone who looks hard enough can find a back door in any program"

NOT TOO SCARY

Steve Helfand, lead systems analyst at a Fortune 50 financial services firm, said he isn't "overly concerned" about this week's security scare. Helfand said his company plans to increase its use of NT. "It will grow, and as it does, we will be looking at more security issues."

Russ Cooper, an independent consultant who heads RC Consulting Corp. in Lindsay, Ontario, pointed out that more groups are ferreting out security flaws these days.

He cited the recent example of Midwestern Commerce, Inc. in Columbus, Ohio, whose programmers wrote a demonstration program to extract user names and groups from the Registry database.

"That information has always been available — it just wasn't widely known. This so-called 'red button' facility set off a scare a few weeks ago because it appeared the program was reading information from the Windows NT Registry, which is the same place where user passwords are stored," Cooper said. "But it wasn't so."

Still, Cooper and fellow Windows NT security expert Tom Sheldon, author of the *Windows NT Security Handbook*, contend that Microsoft could do a better job of alerting customers to these "obscure access points."

"There should be a document somewhere that details all of these and makes it possible to slam these back doors shut," Cooper said.

But there is, said Microsoft spokesman Mike Nash. And such documents have been available since NT 4.0 began shipping last year, he added. But Nash conceded that the uniform resource locator — www.microsoft.com/kb/articles/q155/3/63 — was a well-kept secret.

As of last week, Microsoft also posted it on www.microsoft.com/security.

Microsoft also pointed out that although back doors could let hackers look at lists of server resources, unauthorized users couldn't access or modify any critical information such as databases, files or security information.

Furthermore, "Microsoft has not had a single complaint of any security breaches to Windows NT Servers relating to these back doors," Nash said. ☐

DATA CENTER SWITCHING

3Com rebuilds strategy; users keep options open

By Bob Wallace

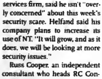
LONG DELAYS in key product shipments have turned former data center switch leader 3Com Corp. into a decided underdog in the hotly contested switching market.

3Com customers who want to move to higher-speed switches in their backbone networks are likely to look beyond the Santa Clara, Calif., vendor to address their needs until the next LANplex is ready, analysts said.

TOUGH SPOT

"Many users are looking to upgrade their backbone technology and are willing to change vendors, which could put 3Com in a precarious position," said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn. "3Com needs to convince its installed base that it will have the products when they're needed or have interim [packages]."

3Com is pinning its comeback hopes on a new version of its LANplex switch — which is due by year's end [CW, April 21] — and price cuts on desktop switches. 3Com hopes the discounts will drive demand for data center switches.



But the company faces an uphill battle against current market leader Cisco Systems, Inc. and is running neck and neck with Cabletron Systems, Inc. Cisco had 38.5% of the $527.3 million market for high-end Ethernet switches in the fourth quarter last year. 3Com held 19.8% of the market, and Cabletron held 19%, according to Dell'Oro Group, a research firm in Portola Valley, Calif.

3Com user Air Products & Chemicals Corp. in Allentown, Pa., is keeping its options open. "We won't be locked in to any one vendor, and have always believed in keeping the playing field level," said Virgil Palmer, manager of computing and telecommunications. "To its credit, 3Com has done an excellent job getting technology right the first time around." Air Products & Chemicals also uses Digital Equipment Corp. switches in its network.

> We won't be locked in to any one vendor
> – Virgil Palmer
> Air Products & Chemicals

3Com readily acknowledges that it is in a tough position. "We were late shipping Fast Ethernet and ATM and saw our market share [in high-end switching] drop from around 50% to about 17%," said Ron Sege, vice president of 3Com Systems switching unit. "We won't make that same mistake again."

But some analysts said the damage is done. "The Fast Ethernet market was laying in wait, and Cisco took best advantage of it and went from zero market share to roughly 50% share," said Eric Hindin, an analyst at The Yankee Group in Boston. For example, Cisco began shipping a Fast Ethernet card in July 1995, whereas 3Com didn't ship one until last September.

Sege said 3Com's strategy is to cut prices on desktop switches at the edge of the network to drive demand for its high-end switches in the core of the network. The vendor recently dropped the price per port of its desktop Ethernet switch to $99.

"Making desktop switches cheaper will definitely have a ripple effect toward the core of the network," MacAskill said. "It's the only way 3Com can drive backbone switch sales." ☐

Regulatory changes give IS headaches

By Thomas Hoffman
PALM SPRINGS, CALIF.

BUSINESS FACTORS such as deregulation, new environmental rules and corporate spin-offs are putting more strain on already struggling IS departments, according to managers at a Gartner Group, Inc. conference here last week.

In some cases, companies are splitting into separate business units to adapt to the new business climate — and their information systems shops are splitting up, too.

Take Simpson Timber Co., a $2 billion, privately held forest products maker. Antilogging regulations forced the Seattle-based company to close or sell half of its lumber mills and lay off nearly 30% of its 7,000 employees last year.

Simpson's IS shop, which was chopped from 180 to 80 staffers, has splintered itself to support the company's four business units. But the separate IS groups are having trouble keeping up with end-user demand because of the smaller staff and budget, said Patrick Gebhardt, an IS director at the company's timber unit.

Simpson is taking a hard look at outsourcing all IS functions that aren't mission-critical. Its shrunken IS staff then could shift away from labor-intensive support functions such as PC installations and spend more time developing strategic, high-value applications.

LEGACY UPDATE

IS departments in the telecommunications industry are responding to last year's federal deregulation law. The regional Bell operating companies are struggling to adapt their legacy systems to the federal rules (see story, page 1). MCI Communications Corp. is spending more money on billing and customer service systems to support its move into the local telephone and cellular markets, said Cyndy B. Harrington, manager of systems metrics and modeling at MCI in Colorado Springs.

Instead of always reacting to external factors, some companies use "scenario planning," in which organizations try to anticipate and prepare for regulatory and economic changes. ☐

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Can spec revive wireless LANs?

By Mindy Blodgett

IT'S SEVERAL YEARS overdue, but a wireless LAN specification, which is expected to lead to interoperable products and lower prices, is finally at hand.

The Institute of Electrical and Electronic Engineers, Inc. (IEEE), which was supposed to deliver the 802.11 spec in 1993, is expected to set the standard by July.

SLOW TO MARKET

But some industry analysts wonder whether the specification — which governs how 1M and 2M bit/sec. wireless LAN products from different vendors will work together — is too late.

Analysts said the lack of a standard has contributed to the wireless LAN market's slow growth. According to Giga Information Group in Cambridge, Mass., the installed base of wireless LANs was only 572,000 in 1996.

"The standard legitimizes wireless LAN technology and will give users that warm, fuzzy feeling," said Craig Mathias, an analyst at Farpoint Group, Inc. in Ashland, Mass. "And the standards should lead to price reductions."

"But 1M or 2M bit/sec. is not that fast — 10M bit/sec. products are coming along this year," according to Mathias. "The standards may therefore be already be viewed as old technology."

But William Frezza, an analyst at Wireless Computing Associates, Inc. in Yardley, Pa., said the importance of the specification shouldn't be underestimated.

"What the specification will do is stabilize the components market, which lowers costs," he said. "Most companies looking at products are not looking at wireless-LANs as a backbone network. They therefore don't need more than 1M or 2M bit/sec. If I use my PDA or even a laptop in a conference room to surf the Web, this is not a bad throughput."

Wireless LANs are useful to supplement in-building and in-campus communication and to link buildings where wired connections are difficult or expensive.

Users agreed that the standard will help the market. Richard Hoffman, lead application engineer at American Red Cross in Falls Church, Va., and a user of products from Proxim, Inc. in Mountain View, Calif., said, "Standards would mean I could buy a generic wireless Ethernet card ... and I would expect prices to drop as well."

Some vendors have started shipping products that support the new standard, including Aironet Wireless Communications, Inc. in Fairlawn, Ohio, which began shipping a wireless LAN bridge, the ARLAN 3000, in December.

Other leading wireless vendors that have worked on the standard include Proxim, Lucent Technologies, Inc., Symbol Technologies, Inc. and Telxon Corp. These companies are expected to release compliant products shortly. □

BETTER LATE THAN NEVER

The IEEE 802.11 specification for wireless LANs will:

- Define how 1M and 2M bit/sec. wireless LAN products from different vendors will work together.
- Govern standards for authentication and privacy, roaming, throughput and power management.
- Define frequency-hopping and direct-sequence wireless LAN products.

Hackers hitch E-mail ride

CONTINUED FROM PAGE 1

ogy at Zurich American Insurance Group in Shaumburg, Ill.

The monthly rate of virus infection in corporate networks has nearly tripled in the past year from 10 PCs per 1,000 to 33 PCs per 1,000, according to a recent survey by the National Computer Security Association. The survey, which was commissioned by a group of antivirus software makers, also found that E-mail is the leading method of transmission. Macro viruses represented 80% of all infections, up from 49% last year, the survey showed.

Although more of a nuisance than a threat, macro viruses can disrupt work by randomly deleting words from documents and commandeering E-mail accounts. Of greater concern, some information systems staffers say, is fear that malicious users may think up more harmful viruses and seize E-mail as the perfect transmission vehicle.

Meanwhile, protection isn't readily available. Most E-mail systems lack built-in virus scanning, and some use encryption that prevents any virus scans on the contents of the mail server. New offerings designed specifically to scan messaging systems are on tap from several antivirus vendors (see chart).

To head off trouble, companies such as Zurich are installing virus-scanning software on their clients and servers. When it comes to E-mail, server-based scanning products are viewed as a better alternative to desktop scanning alone because they can detect viruses before messages reach end users.

"If you can screen at the server level, it is a lot more convenient for users," said William Orvis, member of the Computer Incident Advisory Capability team at Lawrence Livermore Laboratories in Livermore, Calif. It is also safer, he added, because a lot of users don't make sure they have updated virus-screening software.

EMPLOYEES RESPONSIBLE

Zurich hedges its bets further by making employees sign an agreement that says they are accountable if their negligence results in the spread of a virus.

One example of negligence is removing the desktop virus software. Punishment for a virus slipup could range from losing Internet access to dismissal if the virus was widely destructive, Gentile said.

Some sites have responded to the growing threat of viruses by bulking up on software specifically designed to work with their messaging system. Still others have turned to E-mail switch vendors such as Worldtalk Corp. in San Jose, Calif., which sell products that scan E-mail across multiple mail systems.

Jim Wilson, LAN manager at Datascope, a manufacturer of medical instruments in Montvale, N.J., is using Cheyenne Software's Protection Suite for Lotus Notes to guard his company's mail network.

Wilson said he feared that with Notes' built-in replication, a virus could spread too easily to all the other users on the network. He was also concerned that mainstream virus software isn't able to scan down to the message level of Notes.

With the Cheyenne suite, Wilson said, "I sleep better at night." □

Senior writer Sharon Machlis contributed to this report.

E-MAIL VIRUS SLEUTHS

Product	What it scans	Availability
Cheyenne Protection Suite for Lotus Notes	Messages on Notes servers	Now
Cheyenne Protection Suite for Microsoft Exchange	Messages on Exchange	Now
Dr. Solomon's AntiVirus for Lotus Notes	Notes E-mail and attachments	Now
Dr. Solomon's MailGuard	SMTP messages, including attachments	Now
Norton AntiVirus for Lotus Notes	Notes servers	Q3
Norton AntiVirus for Microsoft Exchange	Exchange servers	Q3
Norton AntiVirus for Internet E-mail Gateways	Messages passing through SMTP gateway	Now
McAfee GroupShield for Lotus Notes	Notes servers	Now
McAfee GroupShield for Exchange	Exchange servers	Fall
Trend ScanMail for Microsoft Exchange	E-mail traffic, including attachments	Now

Try outsourcing

Another option for warding off virus-infected E-mail is an E-mail outsourcing company.

This third-party approach appeals to companies that send lots of E-mail via the Internet to trading partners.

A big business-related advantage for letting a third party detect viruses is that the service provider is responsible if a virus spreads to another business, said John Veninger, manager of information technology at the automotive division of Castrol, Inc. in Wayne, N.J.

Castrol uses antivirus software on its Notes network but plans to sign up for a virus-checking service from Fabrik Communications, Inc. The San Francisco-based Internet E-mail service provider will announce this week that it will scan all E-mail attachments using McAfee Associates, Inc. software.

— Barb Cole-Gomolski

Nature has millions of years to
move mountains.

Office 97 migration

CONTINUED FROM PAGE 1

of those who upgraded were Office 95 users. Therefore, they were likely to have a 32-bit operating system and the hardware necessary to run Office 97.

Most of the users claimed that hurdles such as file incompatibilities and training costs are outweighed by improved functionality in the core products.

They also said they appreciated Office 97's improved workgroup and collaboration features, better user interface and the addition of Outlook, a desktop information manager.

"It was a huge ordeal to coordinate the migration from Office 95 to Office 97, but if you plan it well, it can go smooth," said an information systems manager at a large West Coast manufacturing firm who requested anonymity. "Just realize that changing 2,000-plus desktops will never happen on schedule, but if you build in delays, you can get close."

What are the most important reasons for not moving to Office 97?

- Incompatibility with previous versions of Office – 43%
- Don't need new functions – 43%
- Price – 40%
- Complexity of migration – 30%
- Memory requirements – 13%
- Don't want to move to a 32-bit environment – 10%
- Moving to another vendor – 6%
- Don't know – 13%

Base: 48 users of various versions of Office; multiple responses allowed

Source: Computerworld survey

Another user said he is getting ready to take the Office 97 plunge.

"I'm not anticipating that this migration is going to be a nightmare, but I could be wrong," said Jim Morrison, director of clinical computing at Purdue University's School of Veterinary Medicine in West Lafayette, Ind. Three hundred users at the school are moving to Windows 95 and Office 97 within the next six months.

"It's difficult to buy an application that is designed for veterinary medicine. It's easier to take something like a word processor and spreadsheet and customize it. Office 97 allows you to do that," Morrison said.

Although cautious about predicting Office sales, Matthew Price, Microsoft's group product manager for Office, said the Office market isn't saturated.

"Sales are usually a bit larger right at the launch because of pent-up demand, but looking at the size of the market [60 million users in the installed base] compared with the sales of Office 97, there is still a significant opportunity for continued growth of Office," he said.

Still, some doubt that Office 97 can sustain the high sales.

"With people panicking about the year 2000 issue and grappling over whether or not to go with [Windows] NT, it is likely that the upgrade to Office 97 will get pushed off," said Esther Schreiber, an analyst at Credit Suisse First Boston Corp., a New York investment banking firm.

COMPATIBILITY ISSUES

Other issues could hamper Office sales. A user of a rival suite said that despite Office 97's potential benefits, the costs associated with switching are too daunting, even in a small, 55-person office.

"We are looking at Office 97 because of its close integration with the Windows operating system and other [Windows] applications," said Paul Grassman, director of information services at the Institute of Food Technology, a nonprofit association of food scientists based in Chicago. "The cost of the actual Office software is not the issue. It's that we would have to retrain users, re-edit and convert documents, and use hours and hours of the staff's time to deploy the product."

Just the file incompatibilities between Office 97 and previous versions are enough to prevent the institute from deploying the latest release, Grassman said.

"Forget that," agreed Scott Nichols, a senior systems analyst at a large Northwestern paper company that didn't want to be identified. "File incompatibility is a huge deal. We are moving users to Windows 95. Right now, using past versions of Office is working well. So we are not inclined and in no hurry to upgrade."

"Some of our users are also moving from VAX and terminals. And we need to [make] these people comfortable with Windows. They don't even know what Office is yet," Nichols said. □

A quiet sales boom

Office 97's wildly successful sales have caught users, resellers and analysts totally off guard.

And with good reason. Microsoft's Office 97 suite of business productivity applications was several months late for its fall ship date and was hobbled by massive memory requirements that bucked industry trends. It also was plagued by file incompatibilities with previous Office versions and required a 32-bit operating system that would force hardware upgrades on many users.

As a result, users expressed lukewarm interest in deploying Office 97, which left analysts expecting sales to dribble in.

But instead, Microsoft disclosed that 8 million Office 97 licenses have been sold. That made Office 97 the company's most successful product launch and helped propel Microsoft to record quarterly revenue and earnings.

The latest version of Office shipped to corporate users in December and became available in stores in January. "I almost fell off my chair when Microsoft announced these very, very high numbers for Office," said an analyst who asked not to be named.

But financial analysts almost all agreed that Microsoft — marketing hype to the contrary — tends to be conservative, especially when it comes to its financial statements and dealings with Wall Street. So analysts are satisfied when Microsoft reports that it sold 8 million Office 97 licenses; that 60% of those licenses were sold to corporate users; that the remaining 40% were split among OEM bundling deals, retail sales and the academic market; that most of those sales actually made it into the hands of users rather than just the warehouses of distributors; and that the company has only a modest six weeks' worth of inventory in the channel.

But that doesn't mean Microsoft watchers aren't mystified by the demand for the product. Sales are often tracked by a variety of different groups — including market research firms, trade organizations, consultants, distributors and resellers — but blow-out sales performance rarely comes at such a surprise.

"During the most recent holiday buying season, the entire country was aware that Tickle Me Elmo and Nintendo 64 were flying off the shelves," said a financial analyst in New York who asked not to be identified. "Microsoft did so much bragging about sales of Windows 95 when it was launched, it seems very unlike them to keep so mum about Office 97 going through the roof." — Lisa Picarille

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EMC tools help to move data off mainframes

By Tim Ouellette

EMC CORP. this week will announce software tools that help users move mainframe-based data to Unix-based data warehousing applications.

Sources said the products, DataReach and TimeFinder, are major pieces of the Hopkinton, Mass., company's strategy to offer powerful software tools that help users' exploit its Symmetrix line of high-end disk storage hardware.

Users, who are snapping up storage hardware as prices continue to drop, are looking to expand the use of their disk systems by using software tools to move, organize and secure data.

"If there are added ways via software to solve their business problems with these [Symmetrix] boxes, then that is what users are going to do," said John Webster, an analyst at The Yankee Group in Boston.

BREAKING BOTTLENECKS

[illegible]

Source: Find/SVP New York

Some users may shy away from the complexity, and the price they must pay in addition to the storage boxes, to gain those advantages, sources said. But one EMC user said long-term performance gains from the software make up the difference. "If you factored in the downtime cost from how we did things previously, the software costs are minimal," said Jack Blanchard, a systems consultant at BankBoston in Boston. The company is using Symmetrix storage and existing EMC software migration tools to move data between the two banks that merged to create it.

SEPARATE STORAGE

DataReach will take mainframe IBM DB2 data and move it to Unix storage at mainframe data channel speeds.

The target Unix storage can be located on the same EMC Symmetrix box but in a separate partition created by EMC's existing Enterprise Storage Platform software tool.

Users currently can do similar data movement but must use the corporate network. That method bogs down the network and slows the movement of data to the warehousing application.

There are limits to the tool's reach, though. DataReach can move DB2 data only to Unix storage accessed by an Oracle Corp. database that runs on Hewlett-Packard Co.'s HP-UX servers.

EMC is partnering with BMC Software Inc. in Houston, Texas, to install and service DataReach. BMC also will help EMC expand the product beyond its current database limitations with upgrades slated for later this year.

For users who data-mirror between two sites, TimeFinder will create a third mirror copy. That copy is real data, not just pointers to data files as in similar products such as IBM's SnapShot copy feature for its Ramac virtual disk arrays.

DataReach costs $100,000 and TimeFinder costs $30,000. Both are available now. □

PeopleSoft revs upgrade release date

▸ *Users fret about support schedule for current version*

By Randy Weston

PEOPLESOFT, INC. is speeding up the release of its next-generation application package to catch up to rival products.

The Pleasanton, Calif., maker of enterprisewide business process software systems last week announced that the core technology of PeopleSoft 7 will come out in September instead of the previously scheduled release date of early next year.

The offering will include Tuxedo middleware — a key component of the new three-tier architecture — from BEA Systems, Inc. in Sunnyvale, Calif., and Internet-enabled applications.

Support for PeopleSoft 7 and previous versions is a primary concern

The architecture lets users move to a distributed computing environment by deploying the software on multiple servers. Analysts said the earlier release date was set more to keep PeopleSoft competitive with other top enterprise resource planning system vendors than to give users a break.

"Lacking this three-tier technology is a real competitive weakness" for PeopleSoft, said Judith Hodges, an analyst at International Data Corp. in Framingham, Mass. "This is one way that competitors could work to exploit PeopleSoft with a negative view. All the others have had it for awhile. Where have they been?"

But the new release date isn't changing some users' upgrade schedules.

FUNCTIONAL UPGRADES

Steve Nemish, program manager for integrated financial systems at McDonnell Douglas Corp., said his office is sticking to a schedule for upgrading next spring. He said the St. Louis aerospace company is more interested in the functional upgrades to the package — which aren't expected until March — than in the underlying technology due out in the fall.

"We would not be able to change plans from what we have today," Nemish said. "We need a chance first to roll out Windows NT within the company and Windows 95."

But Nemish is concerned that by moving up the release date, PeopleSoft also will shorten the time it will support Version 7 and previous versions.

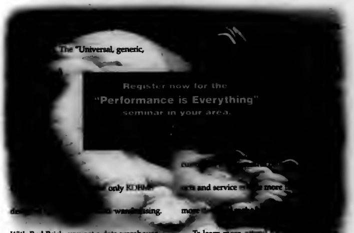
PeopleSoft traditionally ends support 18 months after a software release. But PeopleSoft officials said the company will add about six months to the support time for Versions 6 and 7 to accommodate the accelerated release of Version 7. Support will last 30 months from the release of each version.

Sandy Myskowski, project leader of employee data solutions at GPU, Inc. in Reading, Pa., and president of the PeopleSoft User Group, said the support issue is a big concern for the user community. But she said the faster release has one advantage: It gives companies such as hers the option of moving applications to the World Wide Web more quickly.

"It is providing options for companies that are really pushing for new technology, particularly for those Internet functions," Myskowski said. She said the accelerated release and prolonged support of PeopleSoft 7 will let users "aggressively push or continue on a planned path."

Version 7 will cost about $100,000 per application. ☐

& **Baan beefs up its financial module with Hyperion deal. Page 49**



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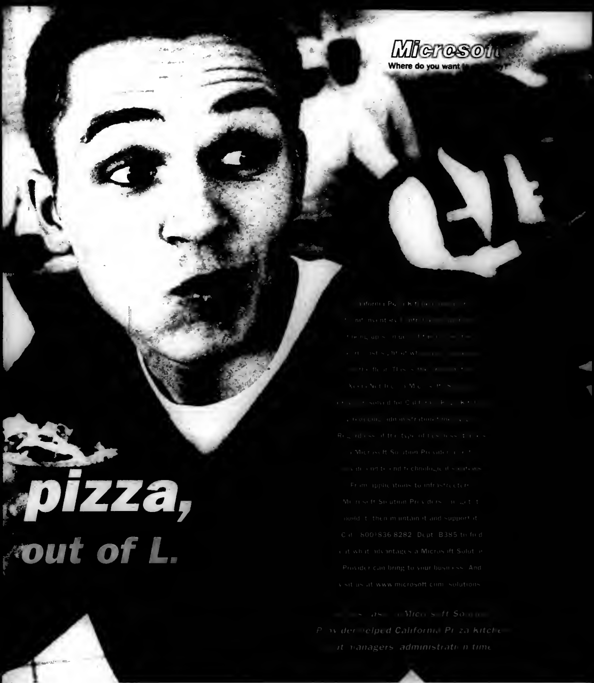

Intranets on factory floors get mixed reviews

By Justin Hibbard

MANUFACTURERS HOPE to churn out better products by installing intranet terminals right on their shop floors.

But intranet administrators have had varying degrees of success in getting shop supervisors to support the installations.

The idea is to have factory workers use an intranet to view documentation on the best way to assemble products. Today's workmanship guidelines usually are paper-based and can be easily lost or damaged, which can lead to improperly assembled products. An intranet also makes it easier to distribute updated manuals from a central server.

The benefits of intranet-based manuals persuaded Dick Ernest, former vice president of quality at Penn Engineering and Manufacturing Corp. in Danboro, Pa., to approve the installation of PC kiosks at each work area along the company's assembly line.

Rolf Deis Jr., webmaster at Penn Engineering, said he expects to finish the project by September.

"We're figuring it's as simple as putting some cabling out there and some basic 486 PCs," Deis said. "I would say for each cell — and we have about 15 now — we're looking at between $12,000 and $14,000."

Management fears that if workers use PCs for training, they will demand them on the work floor – a costly proposition.
– Bill Monroe,
Harris Corp.

Each cell will have about five PCs, which will be handed down from departments that have upgraded to Pentium-based systems. The engineering department will produce the online manuals by using Pro/Engineer from Parametric Technology Corp. in Waltham, Mass., which the department also uses to create print manuals.

HARD SELL

Deis said he was lucky to have the sponsorship of an executive who understood intranet technology. But Bill Monroe, webmaster and skills trainer at Harris Corp. in Palm Bay, Fla., said he has had difficulty convincing managers at his company.

Monroe wants to put 12 networked PCs in a classroom and use intranet-based manuals to train assemblers. The company already posts the manuals on its intranet, so additional development isn't needed, he said.

Like Deis, Monroe plans to use old 486-based PCs from other departments. He estimated it will cost $8,500.

But management fears that if workers use PCs for training, they will demand PCs on the work floor — a costly proposition, he said.

Monroe said if the company already produces intranet-based manuals, putting PCs on the work floor is the next logical step. He predicted the savings in printing alone will pay for the installation.

Eliminating paper isn't the only value manufacturers can reap from an intranet. Ray Laracuenta, an analyst at Gartner Group, Inc. in Stamford, Conn., said other benefits could come from sharing knowledge among assemblers and increasing communications between design and production departments.

Still, companies should justify the costs before installing a factory intranet, Laracuenta said. Compare the cost of getting the information onto the intranet with the benefits of having intranet access to the information, he said. ☐

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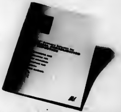


ON THE FLOOR, A LITTLE [illegible]

IS takes crash course in business goals

By Thomas Hoffman

REGULATORY CHANGES are reshaping the telecommunications industry so rapidly that the IS department at BTI Telecommunications Services in Raleigh, N.C., "is doing a lot of things on the fly because it's hard to find so-called industry experts out there," said Pamela Schaard, the company's director of information services.

Schaard, like other information systems chiefs, is challenged to align IS operations with her company's business requirements. But few chief information officers or business unit chiefs are willing to tap third-party services firms to fill the void — either because they believe no outside consultant could possibly understand how their business works or because they believe the IS department can handle the job itself.

That is true at Wigwam Mills, Inc., where an IS steering committee made up of business department heads meets once a month at the Sheboygan, Wis., sock manufacturer. "If something's being missed [by IS], we address that," said Jim Zahn, the company's customer service manager and a member of the IS steering committee.

Still, such reservations didn't stop Hewlett-Packard Co. from throwing its hat into the ring recently when it introduced a set of Microsoft Windows NT services.

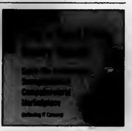
IS shops that lack alignment expertise "have to go outside"

Alignment with business goals "is one of the most important requirements" for CIOs today, said George Logemann, an analyst at The Yankee Group in Boston. CIOs typically fall into two camps, he said: those who have the confidence and skills to tackle IS alignment themselves, and those who recognize their shortcomings and are willing to go outside for help. The latter has helped vendors such as Chicago-based Andersen Consulting build a healthy practice, Logemann said.

Through its offering, HP will meet with IS and end-user departments to determine each unit's business objectives and how IS can help satisfy them.

That's attractive to some users. Lawrence G. Panatera was brought in as CIO two and a half years ago by Kenosha, Wis.-based Snap-On, Inc., in part to help align the toolmaker's IS department with its business units.

Even though Snap-On's IS group has made "excellent" progress in that area, Panatera conceded that other companies that lack the required expertise should look outside for help. In those cases, he said, third-party information technology alignment services are "usually initiated by the business units." □



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COMPAQ

Has It Changed Your Life Yet?

Can IS effort get Bells off the hook?

CONTINUED FROM PAGE 1

"It is in [the Bells'] best interest to make this as big and cumbersome and costly as they possibly can." – Cari Sanborn, MCI

"This is the largest development program ever performed in the history of the company by far," said Lee Bauman, vice president of local competition at San Francisco-based Pacific Bell. The project is so big the company doesn't yet have a firm budget or completion date.

Managers at the regional Bell operating companies (RBOC) said the year 2000 problem pales in comparison to revamping their mainframe systems to handle deregulation.

It is a classic example of how inflexible legacy systems can stymie a company's ability to cope with changing business conditions.

In this case, the systems are so rigidly geared to the days when local phone companies were monopolies, they are hard to adapt to the local competition created by deregulation.

Some long-distance carriers suggest a darker motive: Local providers are dragging their feet on the conversion to protect their monopoly of local service. The RBOCs deny that; they say they are moving as fast as they can.

But nobody denies the problem is massive. Bell Atlantic Corp. in Philadelphia is spending up to 20% of its internal information systems budget on the project. Nynex Corp. in New York shelled out nearly $54 million last year to prepare for deregulation and expects to spend more than that this year.

The challenges include security, poor documentation of old systems and the lack of standards for everything from order-entry screens to how to bill for call forwarding.

"Our systems tend to be proprietary; they're based on older technology," said an RBOC systems analyst who asked not to be identified. Providing access to outside companies "is a whole level of complexity we've never dealt with before."

Under the Telecommunications Deregulation and Reform Act passed last year, local carriers must let long-distance carriers enter the local market and provide them with ordering, pricing, billing and service data.

In essence, the law requires local Bell monopolies to open their customer databases to give incoming competitors the chance to steal their customers.

The incentives are there. RBOCs must comply with the law before they are allowed to compete in the $70 billion long-distance market, which they have coveted for years. And RBOCs could face hefty court or regulatory fines if they don't meet the deadlines (see chart).

"It's nothing short of brute force" to adapt a database with 14 million customers for use by new local competitors.

– Stu Miller, Nynex

But there are staggering technical challenges. "It's nothing short of brute force to do it," said Stu Miller, vice president of wholesale systems at Nynex, which has 14 million customers on its database.

Miller said teams of contractors are poring over code and installing new data fields to handle incoming orders from the new local competitors. The 20-year-old billing system is the most difficult to fix, he said.

One problem is that the old systems were typically built with "all-or-nothing" security, which makes it hard to give competitors selective access to data.

The systems are accessed with a password, and "once you're in, you're in," the RBOC systems analyst said. "You typically have access to everything that's in there. This is a fundamental architectural problem, if you want to give someone access to some of the information but not to other information."

Meanwhile, there are mismatches between the system capabilities of some RBOCs and the long-distance carriers.

For example, Washington-based MCI Communications Corp. can electronically transmit new-customer information to Pacific Bell, but Pacific Bell has to print that information and manually key in the data.

"They actually have a backlog of orders from us because they are behind in rekeying all of the information into their systems," said Cari Sanborn, vice president of local services development at MCI. Pacific Bell is working to automate the process, Bauman said.

Another issue is the lack of national standards for the interfaces between information systems at local and long-distance companies. Standards also are lacking in administrative areas, including order forms and how to bill for services such as call waiting.

Adding to the problem is that the federal deregulation law was left intentionally ambiguous, with the expectation that state and federal regulators would figure out how to solve the technical and operational issues.

That hasn't happened yet, and some disputes have landed in court.

The result, analysts said, is that some carriers are holding back on their conversion plans because of the uncertainties, which range from what services customers really want, to how the new law will be enforced.

"There are so many unknowns at this point. Faced with unknowns, they put it off," said Vince Shaw, senior manager of telecommunications and electronic services consulting at Deloitte & Touche in Wilton, Conn. "There's a sense of denial there."

While the Baby Bells struggle to open their systems to interconnect with one or more carriers, they haven't had to face what will be an even more complex problem: What happens when customers begin switching between local carriers, the way millions now switch long-distance carriers?

"We haven't even thought about a system integrating with multiple systems," said Mike Pfau, division manager of national negotiation support at AT&T Corp. "At some point, companies will want to win customers back."□

Deregulation requirements: Then and now

- Jan. 1, 1997 • The original legal deadline for regional Bell operating companies to make their operation support systems available to competitors.
- At present, the rule says carriers only need to have a plan in place to provide competitors access to ordering, billing, provisioning, maintenance and repair services.
- Agreements among carriers differ, depending on the area of the country.
- Violations of agreements are handled by federal courts.

Source: Federal Communications Commission

The blame game

The federal requirement to interconnect the information systems of local carriers and the long-distance carriers predictably has caused a lot of bickering. The two camps rarely see eye to eye, and now they want to invade each other's turf.

Carl Sanborn, vice president of local services development at MCI, said local carriers appear to be dragging their feet on interconnection to keep long-distance carriers out of their business. "They want to protect their base of customers," Sanborn said. "It is in their best interest to make this as big and cumbersome and costly as they possibly can so people give them a break."

But Lee Bauman, vice president of local competition at Pacific Bell, denied that his firm is dragging its feet. He said the long-distance carriers are too hard to please.

For example, he said Pacific Bell developed a software bridge between AT&T and Pacific Bell systems to track repair orders completed by Pacific Bell for AT&T customers. According to Bauman, when Pacific Bell made the technology available to AT&T in February, AT&T said it didn't have the software necessary to interface with Pacific Bell's system and couldn't use it until October.

— Kim Girard and Robert L. Scheier

Fighting a legacy

Take your most complex, patched-over and poorly documented legacy system.

Now imagine that the government ordered you to let your competitors access that system without setting any standards for the needed interfaces.

That's the multimillion-dollar challenge RBOCs face as a result of deregulation.

Like many legacy systems, many RBOC applications are poorly documented, making it harder to figure out which modules work with each other. Interfaces between systems were built helter-skelter with little long-range planning, said Steven Cohen, executive director for business solutions architecture at Bellcore, a telecommunications software, engineering and consulting firm in Morristown, N.J.

That complexity poses a problem because a long-distance carrier that wants to enter the local market might, for example, buy capacity on the RBOC's local switch or on the RBOC's local line to the customer's home or both.

Federal regulators require the RBOCs to adapt their systems to allow those options and a host of others.

That flexibility is something "most of the incumbent carriers don't provide, even for themselves," Cohen said.

There are also virtually no standards on how to connect the RBOCs' information systems with those of long-distance carriers.

For example, customer requests to buy local phone service from MCI Communications were rejected by a Pacific Bell ordering system because MCI wasn't told the orders had to be entered in all capital letters, said Richard Severy, director of public policy at MCI in San Francisco.

MCI and several other long-distance carriers have filed a complaint with California regulatory authorities over such delays. — Robert L. Scheier

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Briefs

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[illegible] million, a 49% increase from [illegible] million last year. [illegible] said [illegible] sales were strong, especially in the [illegible], where sales grew 91% to approximately [illegible] million.

Losses, layoffs at AST

PC maker AST Research, Inc. will lay off more than 1,000 people — 25% of its worldwide workforce — following a [illegible] million loss. AST said quarterly revenue was [illegible] million, a 35% drop from last year. Samsung Electronics Co. last week paid [illegible] million in cash to gain full ownership of AST.

Dark clouds over Cirrus Logic

Cirrus Logic, Inc. said it will lay off 900 employees — 15% of its workforce — and restructure its business operations following a fourth-quarter net loss resulting from a weak demand for its computer chips. Revenue dropped 20%, from $1.15 billion to $917.2 million. The net loss was $46.2 million. The company said it was reorganizing into four divisions.

CA predicts strong sales

Computer Associates International, Inc. said year-end revenue will be slightly more than $4 billion, up 15% over last year. And net income for the fiscal year will increase by about 28%. Financial results are due late next month.

Software firms hire SWAT teams to fight piracy

DOING THE CRIME

In 1992, Congress made software piracy a felony, which increased the fines and allowed for jail time

The crime: Duplicating software for profit, copying packages for use by more than one person or distributing illegal copies

The fine: In a civil suit, up to $100,000 per infringement; in a criminal action, up to $250,000 total

The time: Up to five years in jail

Source: Software Publishers Association, Washington

▸ *Microsoft, Autodesk reap millions in raids*

By Kim S. Nash

JAFFREY ALLEN SOLOCHECK used to spend his days as a software reseller. But for most of the past year, he haa occupied his time picking up cigarette butts in a recreation yard at a Colorado prison.

> Microsoft and Novell together won $70,300 last year from a rogue bulletin board operator in Kentucky

The father of two boys was convicted of perjury in connection with a software piracy trial last year. He has already served eight months of a sentence of a year and a day in a maximum security federal penitentiary in Florence, Colo. "They got me for perjury but not piracy. I didn't do piracy," he maintained in a recent interview.

Either way, Solocheck is a casualty in Microsoft Corp.'s war on users, resellers and counterfeiters who ateal its software. And Microsoft isn't the only vendor building an internal force to fight software crime.

Autodesk, Inc., with a judge's order in hand and federal marshals in tow, will itself raid companies suspected of piracy. And the booty doesn't have to be hundreds of illegal packages.

"We will raid … simply because we know that upper management was aware" of wrongdoing, said Sandy Boulton, director of antipiracy at Autodesk in San Rafael, Calif.

A raid on a Minnesota company last fall turned up fewer than 10 stolen copies of AutoCAD, a $4,000 computer-aided design package. But it was worth it, Boulton said. "We definitely surprised them. There were quite a few white faces."

More than 80% of Autodesk'a piracy comes from corporate users who copy AutoCAD, Boulton said. Eight illegal copies of AutoCAD are used for every one copy sold legitimately, she estimated.

Neither Microsoft nor Autodesk would say whether crime-stopping was a profitable operation for them. However, circumventing the Software Publishers Association (SPA) and the Business Software Alliance (BSA) means that any settlements recovered in suits or trials go directly to the vendors.

Those two trade groups combat piracy with lawsuits and raids on behalf of the software industry. However, the trade groups collect settlements from offending users and funnel that money back into their antipiracy programs; individual vendors don't get a cut.

And the amount of these settlements isn't trivial. Microsoft and Novell, Inc. together won $70,300 last year from a rogue bulletin board operator in Kentucky. Autodesk collected a total of $4 million last year and expects to increase that amount this year.

LET OTHERS FIGHT THE WAR

But Microsoft and Autodesk are exceptiona. Many vendors; including Netscape Communications Corp., Claris Corp. and Traveling Software, Inc., are content to let the SPA and BSA — most of whose employees are lawyers — fight pirates.

"If we find someone with nine copies of PageMaker, it'a not likely to pay for the cost of the litigation to pursue it," said Greg Wrenn, corporate counsel at Adobe Systems, Inc. in Mountain View, Calif.

Wrenn declined to estimate how much a piracy case costs. But the annual $100,000 fee Adobe pays to belong to the SPA is less than bringing a string of individual lawsuits on its own, he said.

Meanwhile, some vendors aren't satisfied with the current state of affairs. Software piracy, at an estimated $13 billion annually, is growing too fast, and they want swifter, bigger punishments. ☐

HP boosts E-commerce plans with VeriFone buy

▸ *Companies plan to develop smart-card applications*

By Jaikumar Vijayan

HEWLETT-PACKARD CO. bolstered its push into electronic commerce last week with the acquisition of VeriFone, Inc. in a $1.18 billion stock swap.

VeriFone, in Redwood City, Calif., is a major provider of secure electronic payment technology for financial institutions, merchants and consumers. For example, it provides technology for debit/credit and smart-card transactions for point-of-sale systems and Internet transactions.

The companies will develop electronic-commerce and smart-card applications that target financial services organizations, businesses and consumers.

Under the deal, which is expected to be finalized by aummer, VeriFone will operate as a wholly owned subsidiary of HP.

"The good thing about the deal is that it puts HP in a position to deliver end-to-end products for the commerce market," said David Wu, an analyst at The Chicago Corp. in New York.

WEB PROJECTS

Under the agreement, HP will integrate some of VeriFone's technologies into a range of World Wide Web-enabled electronic commerce products and services that it is developing as part of its Extended Enterprise strategy.

VERIFONE: COMPANY SNAPSHOT

Location:	**Redwood City, Calif.**
1996 revenue:	**$472 million**
Business:	**Developer of secure electronic payment technologies**
Purchase price:	**$1.18 billion**

Under that strategy, HP will use the Internet to link enterprises with customers, suppliers, partners, distributors and others. ☐

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OPINION

None of their business My local grocery store is Big Brother.

Well, Little Brother.

It passes out courtesy cards that give customers an automatic discount and all the available sale prices. No card? No sale price.

The store collects data on every item I buy and when I bought it. It then presumably dumps this information into a data warehouse to help target its marketing.

This isn't unusual; page through any issue of *Computerworld* and you'll probably find stories that do the same thing — predicting a customer's behavior is a tremendous advantage.

But my grocery store is missing something. Cross-referencing my purchases and demographic data would yield an awesome tool to target direct-mail campaigns — to a person who doesn't exist.

OK, it was underhanded to give them a fake name and address, but offering sale prices only to cardholders feels like coercion to me, and a few cents off an laundry detergent is too low a price for a window on my private life.

People I mention this to think I'm silly. They say that personal information is a fair trade for personalized service.

But there's already plenty of information about me floating around. When I bought a house, plumbers called. When my son was born, diaper companies weighed in. When I bought a car, insurance agents rang up at dinner time.

I'm tired of it, and I bet I'm not the only one. Ask your data warehouse manager how much fake data you're hoarding about people who don't exist.

Customers aren't obligated to help you market to them. In fact, many of them will walk away if you push them. I don't go to Radio Shack anymore because they demand my address every time I buy a battery.

That minor rebellion isn't noble enough for a novel. But in my own little way, I'm keeping Little Brother off my back.

Kevin Fogarty, *technical sections editor*
Internet: *kevin_fogarty@cw.com*

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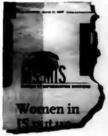
LETTERS

Ms. MIS in wrong magazine?

It's my opinion that Laura DiDio's essay on male/female workplace relationships [CW, March 17] was out of place in a newsmagazine that focuses on business computing. If I were interested in feminist issues involving the workplace, I'd read *Self* or *Cosmopolitan*. As is often the case with articles of this type, women are portrayed as victims of concentrated masculine boorishness — a form of male-bashing that seems to have been in fashion for the past 25 years.

Respect of one's peers is something that is earned by hard work and competence, not bestowed by virtue of gender, race or business title. Women with DiDio's viewpoint need to examine what causes them to feel slighted and excluded by male associates. A positive attitude helps and reduces the need for online forums in which to voice complaints that are mostly of a whining nature.

Bill Brier
Morris, Ill.



Difference of perception

Thanks to Laura DiDio for your column. Lack of respect and equality is still an issue about which women, as well as men, are in denial.

I wonder if you are familiar with Deborah Tannen's *Talking Nine to Five*. It contains the best examination of the glass-ceiling phenomenon that I have ever read, based on her research into speech patterns. It refers to research that demonstrates that the same behavior, speech or resume will be perceived differently, depending on whether it is perceived as coming from a woman or a man.

These perceptions can be changed, but women as well as men need to learn to recognize them when they occur. Please keep educating the technical community about these issues.

Cris Gutierrez
Senior technical writer
Sybase, Inc.
Emeryville, Calif.

2000 doesn't faze Pick

I get a kick out of all the noise raised about the year 2000. For anybody who works in a well-behaved environment, dates are stored in an internal format that is meaningless to humans. Conversion mechanisms to help those humans understand the dates are easily accessible to any programmer. Unfortunately, that doesn't open up lucrative consulting opportunities to deal with the short-sightedness of the past, when dates were stored with two-digit years. For those of us in Pick and Pick-like environments, 1/1/2000 is just another day (11689, to be exact).

1/1/2000 is just another day

Tim Snyder
Harrisburg, Pa.
tsnyder@compuserve.com

Columnist knows reality

Thanks to columnist David Moschella for his insightful and intelligent commentary. In an age when so many people have bought in to the argument that computers are the ultimate solution, it's good to see not everyone has lost touch with reality. Even though I've been an applications developer for 20 years and understand their capabilities quite well, I still haven't found a reason to justify having a personal PC at home. If nothing else, computers have only succeeded in speeding up our lives to the point we don't have time anymore for the things which count the most, like sitting down and enjoying the world.

Ron Marlowe
Virginia Polytechnic Institute
Blacksburg Va.
rmarlowe@vt.edu

More letters, page 38

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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Make schools technology-savvy

Reed Hundt

Schools and libraries are due for an upgrade. And on May 6, the Federal Communications Commission will decide whether to give them a massive boost in capacity.

As we educate our children to lead us into the future, we must upgrade our schools from a world of chalk, slate and dog-eared books to a world of computers, communications and real-time information about the world. The private sector has long recognized the value of giving employees powerful tools that let them be more productive. But only recently have we focused on the need to make the same kind of investment in our children.

As leaders in the nformation technology ield, you know that echnology is no longer a rill. It's a necessity.

Thanks to the Telecommunications Act of 1996, we can help every school in America undertake a potentially revolutionary upgrade. In the act, Congress has instructed the FCC to provide the country's K-12 schools and public libraries with easy and affordable access to telecommunications services. The FCC on May 6 will vote to establish telecommunications discounts to let schools and libraries join the information revolution.

BILLION-DOLLAR EFFORT

If all goes well, our actions will subsidize schools and libraries' purchases of telecommunications services, local networking and Internet access. Each year, the fund will contain at least $2.25 billion, made up of telecommunications carriers' contributions.

The result of this will be an educational and library system that produces students who are uniformly capable of leading the way into the 21st century.

As educators have said over and over, technology has a tremendous positive impact on learning.

As leaders in the information technology field, you know that technology is no longer a frill. It's a necessity. By 2000, 60% of new jobs will require computer skills. Those jobs will command a sizable pay premium.

But children can't learn those skills unless they have the tools. A strategic investment today in upgrading our schools' IT infrastructure could prove to be the most important education initiative since the GI Bill.

The FCC is designing a system that will give the steepest discounts (up to 90%) to the schools that need them most. But the involvement of local communities — and particularly the private sector — will be critical to the success of our collective endeavor to revolutionize our nation's classrooms.

You are the experts in making technology a tool of transformation. Your input and support is crucial to helping schools make wise and strategic investments in technology. You can help your community's school develop sound technology plans, learn how to use technology in the classroom and provide training opportunities for teachers and administrators. Whether as volunteers, consultants, partners or suppliers, you can make a valuable contribution to the quality of education in our schools.

Your efforts won't go unrewarded. For every school that is better equipped to use technology, you will reap a harvest of young people who are better educated. They will be the qualified workforce that you need. They will be the informed consumers of the products you make. And they will be the leaders of tomorrow.

Let's work together to give our children this best, most crucial upgrade. The task is huge, but the reward will be even greater. □

Hundt (rhundt@fcc.gov) is chairman of the FCC. For more information about schools and the Telecommunications Act, visit www.fcc.gov/learnnet/ or call (888) 225-5322.

The coming bandwidth crunch

John Gantz

As you may know, Robert Metcalfe, inventor of Ethernet, IEEE medal of honor recipient and columnist/guru at *Computerworld*'s sister newspaper, *Infoworld*, has predicted the imminent collapse of the Internet.

Because I help manage Internet research at International Data Corp. (IDC), I have a vested interest in proving him wrong. I am tickled that the first two of his doomsday dates — July 17, 1996, and Jan. 1, 1997 — passed without the predicted "gigalapse."

But last month, I developed a forecast of bandwidth demand by using IDC's Internet Commerce Market Model and scared myself in doing so. Forget the Internet outages and blackouts predicted by Metcalfe. I'd worry about the collapse of the global phone system.

My demand forecast model multiplies the number of Internet users by the average number of hours per day those users are online, then multiplies that by the estimated number of file transfers per hour to predict the total number of terabits transferred per day.

The individual assumptions aren't outrageous: In 10 years I expect the Internet population will be 10 times its current size, stay online twice as long per session and transfer 100 times the amount of data.

When you do the math, bandwidth demand grows from about 200T bits per day in December 1996 to 9,000T bits per day in 2001 and 220,000T bits per day in 2006.

At this rate, in 10 years Internet use will take up three times as much bandwidth as voice traffic, rather than make up 1% of the total traffic on the world's communications networks as it does now.

All right, there may be some big errors in my basic assumptions. But I don't see any way that Internet traffic won't grow exponentially and become a significant component of the total mix, even if it doesn't overtake voice traffic.

Telephone callers in San Francisco, which has a high concentration of Internet users, already are complaining about busy signals caused by Internet traffic.

Worse, it was discovered last year [*IEEE Spectrum*, January 1997] that data traffic on WANs has much different aggregation characteristics than voice traffic. Those who own voice networks and hope to jump into the Internet market will be hit with huge, unexpected network upgrades as they learn how to manage data traffic.

It's the AOL syndrome on a global basis. Whole Postal Telephone and Telegraph authorities could go bankrupt.

In 10 years, Internet use wil take up three times as much bandwidth as voice traffic.

All this will happen just after the big switch from the PC computing paradigm to the network computer paradigm. Huge investments in the new architecture, Java development and end-user retraining could be imperiled by an infrastructure that starts to crumble under the weight of traffic for which it wasn't designed.

Sorry about the doomsday picture. If we're lucky, there's a fatal flaw in my forecast, and alternative technology — such as data compression or the wireless broadcast of Java applets — will help solve capacity issues as they arise.

But for now, IS groups will have to be careful about design assumptions for networked applications.

There will come a time when you can't assume reliable bandwidth. And network brownouts will likely be more frequent and will perhaps last hours or days. We will probably need to buy backup network capacity just as we buy power supplies and generators today. □

Gantz is a senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

LETTERS

"I never thought an article in Computerworld would make me misty-eyed."

I READ Gary H. Anthes' article about autistics in the technical workplace ["Computer Savants," CW, March 14] with great interest. Although I work in a technical environment, my undergraduate degree is in behavioral science, with some graduate work in clinical counseling. I visited a home for autistics a year ago and observed that some of this population can indeed be brilliant in some ways. Their recall memories can be incredibly accurate in art and music. I can now add programming and other skills to that list.

Articles such as Mr. Anthes' set *Computerworld* apart from the crowd. Kudos to your editorial staff for their out-of-the-box thinking.

Arthur L. Burton
MIS Coordinator
Sunrise Credit Services
Seaford, N.Y.

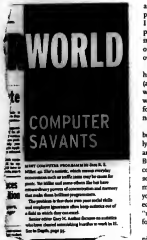
I NEVER THOUGHT an article in *Computerworld* would make me misty-eyed. As the mother of a 5-year-old son with autism, I usually am not impressed with the media's coverage of autism. But Gary H. Anthes' article on computer savants was one of the best stories about autistic adults that I have come across.

Without raising the false hope that all children with autism can grow up and be highly paid professionals, Anthes was able to showcase the incredible skills and talents some people with autism possess. It was nice to hear about people with autism having jobs and contributing to society. Too often I only hear about what's wrong with people like my son.

Thank you for a positive article that will enlighten your readers about a condition that is in fact a spectrum disorder.

I would venture a guess that most people — myself included before my son was diagnosed — have an incorrect idea of what autism really is. People with autism have many wonderful traits and talents. Thank you for pointing this out.

Joan Bass
Derwood, Md.
jbass@cra.org


WORLD

COMPUTER SAVANTS

GARY H. ANTHES did a superb job with his In Depth article "Computer Savants." By identifying and discussing autism as an attribute — and not a definition — of a person, he leaped ahead of even many disability advocates in perception and attitude. Tremendous work!

John Leber
Vice President
United Cerebral Palsy of Illinois

I JUST WANTED to write and say that I think "Computer Savants" was a marvelous feature. It was an area I certainly knew nothing about. Just as important, I can't imagine any other trade journal carrying a feature along those lines.

Brian Jaffe
New York

ALLOW ME TO congratulate you on your excellent In Depth article. As the parent of a very talented 15-year-old boy with chronic process schizophrenia, which is in many ways similar to autism, I was pleased with the fairness and accuracy of your report. It is amazing what people are able to do when given the chance, isn't it?

Carol Wilson
Marrero, La.
cawilson@bellsouth.net

THANK YOU for an excellent article on autistic individuals. I found it one of the most moving and potentially useful articles I've read in a professional journal. I believe you truly pictured autistics as individuals worthy of respect in their own ways.

I am a 48-year-old hardware technician (and dabbler in software). I was born with both hands and forearms deformed, no thumbs.

Some seemed to believe I was severely limited in my life and career options. But my parents encouraged me — and sometimes forced me — to stretch beyond my own limited perspective. I was "mainstreamed" before it was cool.

College and technical training as an electronic technician challenged me physically and mentally.

Today, I'm able to hold my own in the marketplace. Those of us who look "different" appreciate your input.

Gene Whitehurst
Houston

THANKS FOR a very interesting and informative article on autistic people in computer programming. I want to comment on the following statements: "Autism is a complex neurological disorder … it may stem from immature development of certain parts of the brain …"

Imagine for a minute that the earth is populated with persons as hairy as most of the apes or gorillas now on this planet. A couple of us, though, are relatively hairless, much like most humans are now.

Would those few relatively hairless individuals be labeled as products of a disorder, or as having immature development of hair cells? Or possibly would those few have their skin characterized as the result of abnormal skin chemistry?

My feeling about autism is that it is very likely a normal expression of normal and desirable genetic variation. We were once covered with hair. There was a time when we lacked ears, hands, arms, legs and heads large enough to hold a self-aware brain.

I'm not saying that autism is a characteristic of next-generation humans. I am saying that too often we label what is probably just another example of accurate genetic expression as a disorder. Thanks for giving us something unexpected in *Computerworld.*

Doug Stone
Calabasas, Calif.

I AM BOTH THRILLED and upset about the In Depth piece on autistic programmers. I am the mother of twin boys who are autistic, and although they are only 9 years old, they both have a passion for the computer. I was thrilled and loved the upbeat slant of the piece.

What I was upset about was the poem you printed. Clearly, that particular person with autism has some issues, but as president of the Autism Society of Greater Hartford and past president of the Autism Society of Connecticut, I can tell you that I know more "normal" people who show signs of depression than autistic people who do. That poem, although posted on a public board, was posted on a autism-related board and should have stayed there. Those boards are public, but a certain amount of privacy should be honored.

I was upset about the poem

Katie Myers-Lee
Simsbury, Conn.

ALTHOUGH I HAVE nearly nowhere the brilliance of the programmers mentioned in your feature on autism and computers, I am one of those high-functioning autistics whose life was enriched by computers. In 1992, when my tasks in the medical library where I work as an assistant were computerized, I discovered an ability that turned out to be a valuable asset to my workplace. I am a linear, mathematical thinker who sees the world in black and white. I have a natural feel for the underlying logic.

After sailing through the basics of the software my job required, I plunged into the advanced features that few co-workers dared to touch. When word about my accomplishments got around, staff members from all departments turned to me for help. Some valued the help so much, they tolerated my surly nature. I certainly wouldn't win a popularity contest, but I earned respect.

I owe my survival in a regular workplace to the supportive and accommodating staff I work with. My superiors not only accept my handicap, but go out of their way to help me get through the rough periods.

On the Internet, I found companionship and support in a setting where weak social skills don't matter. When I'm feeling particularly low, there are now friends from all over the world ready to E-mail me some words of encouragement.

Away from the computer, my life is a different story. A totally humorless person with severe anxiety and a sour disposition on top of the autistic social awkwardness, I'm no fun to be around. Coworkers impressed with the elaborate forms and pamphlets I churn out find it hard to believe I can barely keep house.

I know the frustration of living in a world that's hostile to people like me. Thanks to computers, there is now a place where I fit in.

Marla Comm
Montreal

I ENJOYED YOUR ARTICLE. We consider ourselves a friend of Kerri Quirk, who is a young deaf autistic person. We have her wonderful picture of poppies on the wall right behind our computer. Our friendship consists of one meeting. I am sure that was enough for her, and I would not intrude on her own unique personality. Thank you for your article and the associated links.

George S. Campbell
Storrs, Conn.
cambull@neca.com

Story's subject says poem hit the mark

GARY, THANKS for the great article! Both my husband and my business partner got a kick out of the "brown paper bag" quote, saying how true it is!

I especially liked the inclusion of the poem. It helps to show people the darker side of having your sensory system on overload all the time. Poems and art by autistic people are typically very dark or full of longing for understanding, so this is not unusual in the autistic world.

Sara R. S. Miller
Milwaukee

PHILIPS

COMMENTARY

Does recession loom?

DAVID MOSCHELLA

IS THE IT industry heading for a recession? Should you care?

Although economists love to talk about "soft landings," the reality is that when recessions hit, they usually hit suddenly and with unexpected force. The most recent IT recession in the U.S. lasted from about 1987 to 1991. It spawned the strong surge in outsourcing, the temporary "death of the mainframe" and a substantially weakened IS function. All three trends were eventually reversed during the subsequent boom.

As someone who used to manage worldwide forecasting for International Data Corp., it seems to me that the evidence of a possible downturn is now strong enough to warrant a little contingency planning. Consider the following IT and economic indicators:

1. Macroeconomic uncertainty. The growth of our industry and that of the overall economy have become inseparable. Although the U.S. economic picture still looks pretty good, interest rate increases, high levels of consumer debt, rising bankruptcies and jittery stock prices are signs of potential trouble.

2. The year 2000 problem. If the remedy costs anywhere near the $300 billion to $600 billion that has been estimated, it can't help but damage our business. Year 2000 fixes are siphoning off people and money from more productive projects and shaking top management confidence in the IT profession. Our industry has made a huge mistake and will almost certainly have to suffer some for it.

3. Slowing PC product upgrades. A few weeks ago, I wrote about the corporate impact of the stalled home PC market. And in spite of Microsoft's announcement of strong Windows 95 and Office 97 sales, it remains unlikely that U.S. companies will continue to upgrade their desktops at the same pace as in recent years.

4. World Wide Web transition effects. Recessions are natural in the early years of a major technology shift. The returns on new investments in Web sites, electronic commerce and intranets will take time. Until then, both those initiatives as well as existing legacy systems must be maintained. This unavoidable parallelism results in inefficiencies that can weigh down overall productivity.

5. It's time. For five straight years, IT spending in the U.S. has grown by double digits. History shows clearly that economies don't grow in straight lines. Periodic recessions are required to weed out excesses; they set the stage for improved productivity and eventual expansion. The computer industry has lived through previous downturns in 1975-76, 1981 and the prolonged stagnation of 1987-1991.

Looking ahead, it's not hard to envision a grim scenario where a stagnating U.S. economy and lagging Web commerce combine to put the brakes on IS budgets. In this newly constrained environment, mandatory year 2000 expenses could virtually eliminate incremental IT resources, forcing difficult priority decisions. In theory, serious budget pressure could last until the new millennium.

Recalling the pain of previous downturns, I sure hope the current indicators prove misleading. But don't count on it. If a recession hits, are you prepared? □

Moschella is senior vice president of research at Computerworld, Inc. and author of Waves of Power, Dynamics of Global Technology Leadership *(Amacom). His Internet address is david_moschella@cw.com.*

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161,738.80
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Briefs

DISK DOWNTIME

Industry	Average loss*
Securities	$29,301
Manufacturing	$26,761
Banking	$17,093
Transportation	$9,435

* For one hour of disk array downtime
Base: 450 IS executives

[illegible]

Updating ancient bisync host links

By Tim Ouellette

POP QUIZ. Who remembers what a bisync connection is?

That old mainframe-era standby — the binary synchronous protocol — is still used by an estimated 20,000 host systems. As the precursor to IBM's SNA, bisync is in place particularly at banks, which use the protocol for those indispensable automated teller machines.

But the good news is that users who kept both their old front-end DOS applications and bisync connections to the mainframe can now start to give end users the same wide access to mainframe data and processing power that most other SNA shops already enjoy.

Data Interface's Multiprotocol CommServer features:

Host connections: Traditional bisync, non-SNA coax, SNA

LAN support: NetBIOS, NetWare, TCP/IP

Server hardware requirement: 286-based PC

Data Interface Systems Corp. next week will announce its DI3270 CommServer, which provides terminal emulation to both SNA-attached and non-SNA mainframes.

NO MORE CODING

The Austin, Texas, firm also has shipped its DI327n Workstation software, which enables shops to run DOS-based terminal emulation applications on Windows PCs without additional coding.

Observers said the offerings are particularly useful to companies that choose not to tinker with products that have done the job over the years.

Industry analysts agree that bisync has a notable presence, especially in financial and government sites, mainly because many users didn't want to mess with something that already worked and be forced to rewrite application code in the process.

Today, however, few terminal emulation packages for PCs offer bisync support to get at this often crucial information.

Data Interface's CommServer will allow users to choose the

Updating, page 45

PC FINANCING

IBM to offer financing packages

▸ *Plans to broaden service, integration*

By April Jacobs

IBM CORP. plans to join its competitors in the PC financing business this year, as well as broaden its service and integration offerings.

IBM joins Compaq Computer Corp. in Houston and Round Rock, Texas-based Dell Computer Corp. in the PC financing business.

IBM will offer financing packages immediately. Dell and Compaq both said they will offer packages this summer.

The IBM financing package will let users write one monthly check for everything from PCs to help desk services. IBM's SystemCare program also will let users manage and exchange their PCs and other products through resellers on a monthly payment basis.

Many companies now finance hardware and software as up-front capital expenditures. And help desk and support services may be paid for by hiring in-house staff or through agreements with outsourcers.

Besides PCs, IBM will include access to network management software technologies, integration services and support options.

Joseph Pucciarelli, an analyst at Gartner Group, Inc. in Stamford, Conn., said companies will have access to more products and services through IBM resellers than they had before. Companies also will have a financing option to compare with what they may have used otherwise, he said.

SystemCare services include LAN monitoring and management, end-user help desk service, other remote technical support, business recovery services, warranty upgrades and maintenance services.

"It's almost like a lite version of desktop outsourcing."
– Joseph Pucciarelli, Gartner Group

"It's almost like a lite version of desktop outsourcing," Pucciarelli said. He said SystemCare will let users mix and match offerings through their respective resellers, depending on their needs.

Another key feature of the program is the SystemCare Technology Exchange, which lets customers upgrade their IBM PC hardware after only two

IBM, page 45

Apple unveils servers

▸ *Targets education, publishing, business arenas*

By Lisa Picarille

APPLE COMPUTER, INC. is attempting to improve its position in the server market by unveiling a pair of workgroup servers that users can configure for applications, file/print functions or as an Internet server.

At last week's Seybold Seminars' conference in New York, Apple took the wraps off two servers based on the PowerPC

Apple, page 45

APPLE DISHES UP NEW SERVERS

With Workgroup Server 9650/233 and Workgroup Server 7350/180 you can choose one of these three software configurations:

Name	Usage	Software included
Application Server Solution	For deploying applications	➔ Apple's RAID ➔ AG Group's Skyline/Satellite ➔ Datawatch's Virex ➔ 4-Sight L.C.'s Now Contact and Now Up-to-Date ➔ IT Design's Viper Instant Access
AppleShare Server Solution	For adding workgroup servers	➔ All the software bundled with Application Server Solution ➔ Apple's AppleShare IP 5.0 software bundle ➔ AppleShare Client for Windows ➔ Claris' Emailer and Homepage ➔ COPS' COPStalk ➔ Open Door Networks' LogDoor ➔ Santorini's Server Manager ➔ Vicom's Internet Gateway
Internet Server Solution	For creating, managing and publishing content for the Web or an intranet	➔ Quarterdeck/StarNine's WebStar/SSL ➔ EveryWare's Tango Enterprise ➔ AppleRAID and MacDNS ➔ Adobe's Acrobat Reader ➔ Open Door Networks' LogDoor ➔ Maxum Development's NetCloak and PageSentry ➔ Bare Bones Software's BBedit ➔ Claris Homepage ➔ Netscape's Navigator

Prices: From $2,899 to $6,899, depending on product and hardware configuration

FROM THE EDITORS OF

COMPUTERWORLD

VOLUME 2, NUMBER 3

APRIL 28, 1997

Intranets

A MONTHLY LOOK AT WEB DEVELOPMENTS BEHIND THE FIREWALL

SYSTEMS AND NETWORK MANAGEMENT

Probe 'n' Pray

With few integrated products to manage intranets, piecemeal products have to suffice for now. Users are looking for divine inspiration in the form of polling agents, centralized consoles and more rigorous administrative practices. By Cheryl Gerber

Like the intranet itself, intranet systems management is sprouting willy-nilly — from content management and security to software distribution and, now, to administering mission-critical processes. Eventually, the interactive stage will grow into an active, automated intranet-centric approach in which the intranet redefines systems management, dividing the administration of physical elements and Web-based services into separate functions, systems management vendors say. In that scenario, systems administrators will dispatch Java or ActiveX-based agents to poll disparate systems and bring information back to a central display.

But the reality today is that there are no formal standards, most users do not manage systems through their intranets, and there are few products that make it easy to do so. There's an age-old reason it turned out this way. "Systems management has not been where vendors made money. They made their money selling Unix servers and corresponding network components, such as routers,"

INSIDE • NEVER TOO LATE TO MANAGE, PAGE 4 • SGI PROJECTS THE FUTURE, PAGE 10 • INSIDE

SYSTEMS AND NETWORK MANAGEMENT

Continued from page 1

says Lynne Jackson, network management analyst at Datapro Information Services in Delran, N.J. "Rather than being innovative and diagnosing the need before it occurred, they responded almost as if they were forced to find a way to manage the systems they sold."

But customers are not willing to pay simply to manage static information they publish on intranets — a sign that the market for intranet systems management is just not mature, says Bill Bonin, director of the OpenView Internet program at the Network and Systems Management Division of Hewlett-Packard Co. in Fort Collins, Colo. Once customers move from publishing sales literature on their intranet to letting users place orders that get processed there, then they are evolving from passive to interactive and mission-critical. "Then it will need to be managed because you are committing inventory, extending credit and committing to shipping dates," Bonin says. (For an intranet management primer, see story page 4.)

WHAT'S ONLINE

In the interim, developers are building and beginning to deploy products that address today's user concerns about intranet software and traffic management. Boston-based Context Media LLC, which develops large customized intranets, just finished evaluating Xcellenet, Inc.'s Session Express, which enforces sessions between corporate sites and client machines. The product is slated for release this month.

"Right now we need to get portions of Web sites downloaded to individual laptop users, so we'll use it for content delivery and management. But as we go forward, we'll use it for software management as we make more use of software plug-ins we're developing," says David Fish, president of Context Media's Knowledge Services Division. Context is building the plug-ins with ActiveX controls that will allow users to navigate content visually through a map that displays the relevance of the information.

Session Express is built on technology in Xcellenet's flagship remote access utility product, Remoteware. The lightweight software sits in the browser environment and supports incremental updates. "I don't have to move files twice, only once, making administration easier," Fish says. Compression technology in the software helps manage the 28.8K bit/sec. bandwidth constriction faced by Context's load-and-go (vs. browse-and-go) content users, who routinely download HTML content, he explains. Additionally, the scripting language in Session Express permits a degree of storage management by isolating content in a directory structure that can be managed exclusively, he says.

Tips For a Secure Intranet

1. Define and enforce a corporate policy for employees' use of information resources on the intranet.

2. Authenticate users; keep mail lists current.

3. Incorporate protection technologies: antivirus products, Java security, Windows NT security tools, firewalls, intrusion detection software, etc.

4. Review audit trails to assess the types of use or misuse. Train personnel on what the various types of abuse look like.

5. Set up the intranet so resources are available only to specific groups of individuals. Everything does not have to be available to everybody.

6. Monitor the system in real time and have secondary resources available in the event that part of the intranet goes down. Make sure the network doesn't become vulnerable if a component should fail within it.

SOURCE: REBECCA DUNCAN, NETWORK SECURITY ANALYST, DATAPRO INFORMATION SERVICES, DELRAN, N.J.

Such functions may be today's baby steps in the direction of managing systems through intranets, but they still don't get to the heart of the matter. "Users need to know CPU usage and disk I/O rates to prevent performance degradation," says Carl Cohen, strategic marketing manager at BMC Software, Inc., a Houston-based systems management vendor. Cohen acknowledges that most systems management vendors ply products that monitor systems-level functions or Web server functions, but no one product contains all functions on one screen. Such functions include integrated alert systems from disparate sources, remote access, pagers, a variety of operating environments and Internet technology.

But products are moving in that direction. HP is Web-enabling its full OpenView systems management product line, Bonin says. Half of that project is complete.

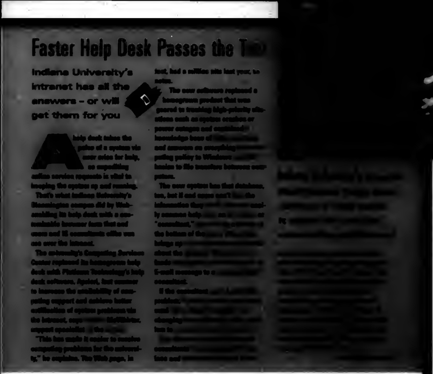
And BMC Software last year released a Knowledge Module for the Internet that sits atop the company's Patrol management product.

INHIBITING PROGRESS

Still, the advances in product development are hampered by a lack of industry standards. Simple Network Management Protocol (SNMP) has been around the longest. But last year, Sun Microsystems, Inc. and others proposed Java Management Application Programming Interfaces (JMAPI), a set of extensible objects and methods to write Java programs for managing over intranets. Microsoft Corp. and another group proposed Web-based Enterprise Management.

WBEM, for example, contains three components. The one likely to materialize first is the Common Information Model, which represents man-

ILLUSTRATIONS BY JIM PAILLOT



Faster Help Desk Passes the T

Indiana University's intranet has all the answers – or will get them for you

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In the meantime, users are making do with today's products. Symantec Corp.'s information systems communications group, located in Toronto, uses Patrol with the Internet module.

"We haven't been able to find one network management product that does everything we want, but Patrol does a good job of trying to meet the requirements," says Dimitri Vekris, Symantec communications specialist. Vekris uses the Patrol Unix Module to monitor file system capacity for all of the company's Unix-based intranet and nonintranet servers, together with the Internet Knowledge Module to monitor electronic-mail servers and gateways. He can see them together on one screen. Through a drill-down Windows system, the console monitors all modules, which are represented by icons. When an icon goes red, signifying an alert, its parent icon also goes red, which in turn makes its parent go red, Vekris says. "You get a snapshot view of what's going on in your system," he says.

However, BMC Software does not yet offer the remote console via Web browser that Vekris would like to have. Although BMC Software's Web-based remote product, Patrol Watch for Web Browsers, is in beta testing, few management console applications offer remote notification in a modularized fashion out of the box, Vekris says. Like most point solutions, they are add-ons that often need to be customized and are short-lived. "There's a time value — an expiration date — on point solutions. As time increases, the value of the solution diminishes," Vekris says.

Users and vendors say the natural progression of systems management through the intranet will be to address

Continued on page 6

PHOTO BY LARRY LADIG

SYSTEMS AND NETWORK MANAGEMENT

Continued from page 1

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For an even more comprehensive look at intranets, visit our online presence at [illegible]

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Faster Help Desk Passes the Test

Indiana University's intranet has all the answers – or will get them for you

A help desk takes the pulse of a system via user cries for help, so expediting online service requests is vital to keeping the system up and running.

That's what Indiana University's Bloomington campus did by Web-enabling its help desk with a customizable browser form that end users and IS consultants alike can use over the intranet.

The university's Computing Services Center replaced its homegrown help desk with Platinum Technology's help desk software, Apriori, last summer to increase the availability of computing support and achieve better notification of system problems via the intranet, says Dennis McWhirter, support specialist at the center.

"This has made it easier to resolve computing problems for the university," he explains. The Web page, in fact, had a million hits last year, he notes.

The new software replaced a homegrown product that was geared to tracking high-priority situations such as system crashes or power outages and contained a knowledge base of 5,000 questions and answers on everything from computing policy to Windows and DOS basics to file transfers between computers.

The new system has that database, too, but if end users can't find the information they need, they can easily summon help from an IS staffer, or "consultant," by clicking a button at the bottom of the page. The button brings up a form that asks for details about the problem. The form then feeds into Apriori, which fires off an E-mail message to a predesignated consultant.

If the consultant can't handle the problem, Apriori lets the consultant send the incident to another by changing the ownership of the problem to a second-level consultant.

The university recently enabled consultants to customize the interface and control what is put in the short subject area, where requests are described. Soon more customization will be easy because upcoming releases of the Apriori client will be Java-based, according to Marty Leamy, vice president of systems management at Platinum. That will allow users to tailor features to their particular group, precluding an overcomplicated system with unneeded features, McWhirter says.

— CHERYL GERBER

Indiana University's Dennis McWhirter: Help desk software 'has made it easier to resolve computing problems'

agement information across all components: hardware, operating system, applications and databases. This is being presented to the Desktop Management Task Force for approval. The second is a protocol that accesses the information, which must be approved by the Internet Engineering Task Force. The third is a management solution that presents the information in a Web browser.

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Users and vendors say the natural progression of systems management through the intranet will be to address

Continued on page 6

Management Shouldn't Be an Afterthought

But if it is, have your systems management vendor enhance its offerings or go with an upstart Web enthusiast

Tactical solutions, not long-term strategy, are what companies should focus on in managing their intranet — and the sooner in the intranet development process, the better, says Clare Price, research director for platform systems and network management at Gartner Group, Inc. in San Jose, Calif.

"Our old blueprint of management by troubleshooting or long-term planning isn't going to work in this environment," notes Price, who spoke on Internet and intranet management strategies at Gartner's recent Internet & Electronic Commerce Conference & Exposition in New York.

Instead, she says, companies must work on integrating the different management disciplines to manage bandwidth, traffic, security, storage and content — the five components of intranet management — "if you are going to achieve the benefits you are looking for with intranets."

In particular, the traditional management focus on network performance, application performance and response time "will take a backseat to bandwidth and traffic. There's simply not going to be enough bandwidth in our organizations to handle the traffic we're going to see," she says.

According to Price, it's best to come up with a management plan when conceiving the intranet and consider products in relation to your overall goals, not just as point solutions. But at many organizations, either intranets have popped up in grass-roots fashion around the company or the intranet is already up and running before management issues are considered. As it has at some companies, that might precipitate a scaling back of new features while management concerns are addressed or call for some point products. But "if you can't justify ROI in six months, don't buy a point product," Price says. "The long-term strategic value of these products is simply not there."

Marketwise, what are your choices? Price breaks down the sector into two camps: You can stick with your traditional systems management vendor, such as Hewlett-Packard Co. or Tivoli Systems, Inc., "and hope they'll enhance or expand" their offerings to cover the intranet market.

Intranet users tend to be either on the bleeding edge, grappling with managing their sophisticated intranets, or just beginning to address intranet development and management as they hear reports from the front.

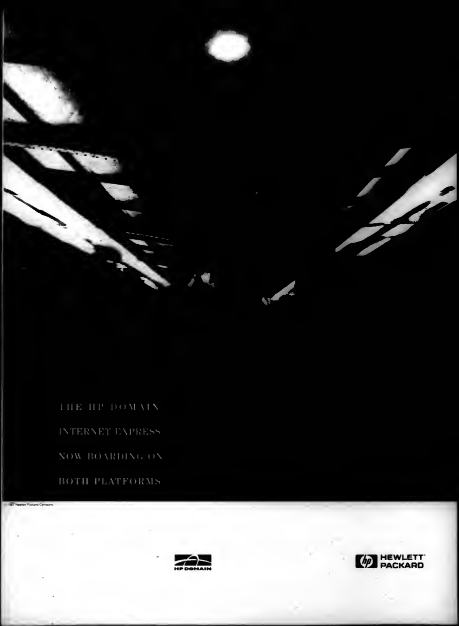
Or you can go with an upstart "Web enthusiast" such as Microsystems Software, Inc. (which makes CyberSentry, a corporate Web monitoring and filtering tool) or Net.Genesis (its net.analysis is a multiuser Web traffic analysis tool), though such niche products don't cover the larger issues such as enterprise administration or operations. A combination of these two types of vendors would be ideal.

"What we need to see is the track record, and the traditional focus needs to incorporate" newer technologies, Price says. And that will probably happen over the next 18 to 36 months as the traditional vendors acquire the hot young companies, much as Microsoft has acquired NetCarta Corp. (which makes a navigational tool for content management) and as firewall vendors (CheckPoint Software Technologies Ltd., Raptor Systems, Inc.) have grown to incorporate the next generation of security in authentication, encryption and scanning of hostile Java apps, she says.

As for as using the Web browser to perform management functions, some point tools and the fledgling Web-Based Enterprise Management specification — announced last summer by Microsoft, BMC Software, Intel Corp., Cisco Systems, Inc. and other vendors — offer this functionality, Price says. But so far, they mainly manage Web sites and pages rather than perform traditional management functions such as backup and recovery, automation or help desk functions. More of those functions will be on the Web by 1999, she says.

But today, intranet users tend to be either on the bleeding edge, grappling with managing their sophisticated intranets ("they're having, in some cases, to pull back and make some changes, maybe not advance as quickly"), or just beginning to address intranet development and management as they hear reports from the front, Price says.

— ANNE MCCRORY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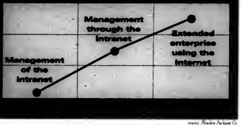
Management of the Intranet
Management through the Intranet
Extended enterprise using the Internet

Source: Hewlett-Packard Co.

Continued from page 3

more network concerns, such as bandwidth and traffic management. And that's already beginning to happen. For example, Interactive Planet, Inc., a Web site developer in Atlanta, plans to use Session Express for traffic management to trim down such push technologies as the Pointcast information-gathering news feed that causes network pipes to bulge, says Marc Colando, company president.

"If you get 5,000 users simultaneously on Pointcast with graphics, you can set up onetime work objects and move things en masse from the server to the client," Colando says. Interactive Planet uses the software's work objects to activate a preprogramming feature via a "send" or "get" when the user clicks on the work object.

Still, those who use intranet-based applications via Web servers face a new set of management challenges. According to Mike Maples, director of product marketing at Tivoli Systems, Inc. in Austin, Texas, "The things I monitor will be different. The perimeters will be different because the way I access is different. There will be a strain on the central point so load balancing between servers will be more of an issue, to make sure no one server is a single point of failure. Another issue will be the speed of access from client to server."

One user pointed to the combined use of HP's JetDirect and Web JetAdm products as a model for how intranet systems management ought to someday look. JetDirect is a device that plugs into laser printers; Web JetAdm controls JetDirect via a Web server. "In the past, you had to manage HP LaserJet printers through a proprietary HP program you managed from a workstation, whereas this is available from any intranet or Internet Web browser," says Chris Meyers, a systems analyst at James Moore & Co., a Gainesville, Fla.-based accounting firm.

James Moore runs Novell, Inc.'s Managewise 2.1 network management software. "It has alarms and flashes lights. It's real pretty, but I can't run it via a Web browser. I have to dial in using remote control software or get in front of the console itself. I'd rather have it connected via one single point of administration," Meyers says.

Although Meyers and others say they know most systems and network management software will become Web-enabled, it has yet to arrive. "Novell's just not there yet. We haven't totally leveraged our internal web for systems or network management because the products aren't there yet. A way to connect to Managewise via a Web browser would be really nice," Meyers says. Sources say Novell will provide this functionality by year's end.

While the promise and the goal is to manage the network remotely using a Web browser, this can be accomplished today only using piecemeal solutions. "It'll take a long time before it's all integrated. By 1998 we should start to see more integrated systems and network management solutions," Datapro's Jackson says.

What Vekris would like before that is a combination of the three developing standards. "The best solution is if standards could morph into the best of SNMP, JMAPI and WBEM," he says. Until that happens, however, it appears as though users will have to take it one system at a time.

Gerber is a freelance writer in Kingston, N.Y.

RESOURCES

BOOKS AND PUBLICATIONS

- **Building the Corporate Intranet**
  "Chapter 13: Managing the Intranet"
  By Steve Guengerich, Douglas Graham, Mike Miller, Skipper McDonald
  John Wiley & Sons, November 1996
- **Intranets Unleashed**
  By David Garrett, et. al.
  InterActive, Inc. and Sams.net,
  September 1996
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NETSCAPE

Updating Millions of Pages

Pfizer manages content with system for dispersing chemical safety data

Failure to control content on this intranet could be hazardous to someone's health. That's because pharmaceuticals giant Pfizer, Inc. relies on its intranet to distribute government-mandated information on occupational hazards in the workplace.

Every chemical brought into each of Pfizer's 30 manufacturing sites worldwide must come with hazard communications that comply with international and U.S. government regulations. These Material Safety Data Sheets (MSDS) — some 200,000 — run about five pages each and must be updated regularly and made available to all employees. "The delivery and management of Material Safety Data Sheets were a big problem for us," says Chuck Reaves, manager of information and training at Pfizer's corporate, environment, health and safety group in New York.

'Our prime goal was to make sure the safety sheets were easily available to employees'

— CHUCK REAVES

Pfizer brought in Internet consulting firm TriNet Services, Inc. in Raleigh, N.C., to help build an application to update and disseminate the safety data. The Technical Information Exchange System (TIES) was the result. "Our prime goal was to make sure the safety sheets were easily available to employees," Reaves says. "It used to be completely manual. Every site received MSDS on paper, photocopied the pages and then walked around the plants continually updating the MSDS sheets in their binders at 30 manufacturing sites globally. The plants managed this themselves. We thought we could manage it better from a central location."

Before TIES, Pfizer used to send out copies of pertinent sections of the daily federal publication with announcements from the U.S. Occupational Safety and Health Administration (OSHA) and the U.S. Environmental Protection Agency (EPA). Now Pfizer finds the Environmental Health and Safety sections of the register on the EPA and OSHA sites on the Web and calls them to the attention of appropriate staffers. "Using TIES, we post links to the exact parts of the federal register that relate to OSHA, EPA and international regulations," Reaves says.

TIES works at the desktop level and requires no greater than the Windows 3.1 environment. Those were system requirements. "Our goal was to maximize Pfizer's existing infrastructure as much as possible," says Andy Schwab, TriNet executive vice president and manager of the Pfizer TIES project. "It made building the TIES system less expensive than if we had to deploy the underlying infrastructure."

TriNet built on Pfizer's Sun Solaris server and Oracle Corp. database by acquiring Oracle's Database Administrator product and a Netscape Communications Corp. server. These products gave the TIES application a central database resource for real-time access and distribution of the critical data via a Netscape browser interface. TriNet built TIES using de facto standard Web development tools such as Microsoft's Front Page; Hot Metal, an HTML editing tool from SoftQuad; and ASCII editors.

Once TIES was complete, TriNet started building a front end to another intranet application to track environmental health and safety action items. Called the Pfizer Action Tracking System, or PATS, the system lets users follow up on actions that are related to information distributed via the TIES system. Just being completed, the real-time system lets users online to see the status of their audits and make comments.

Pfizer's latest extension of TIES is a plan to build on-demand video training on health and safety topics. Using a videotape presenter called Vxtreme from Vxtreme in Palo Alto, Calif., Pfizer is developing independent, downloadable video training sessions. Instead of sending someone to India for a seminar, for example, Pfizer will use video to provide training to its remote sites.

Then it will confront the next generation of intranet systems management concerns: bandwidth management. Until then, document management is Pfizer's key intranet management challenge.

— CHERYL GERBER

PROJECT: SILICON GRAPHICS, INC.

Managing 1,700 Web Servers

By Elisabeth Horwitt

Silicon Graphics, Inc.'s intranet grew organically, with users and departments around the company putting up their own Web servers and applications. No effort was made to provide an overarching navigational structure until late 1993. But today, the intranet has 1,700 Web servers, some 350,000 URLs and a growing number of mission-critical Web applications, and IT is taking a more serious approach to intranet management and administration.

WHAT'S ONLINE

For the full interview with Silicon Graphics and [illegible] clips, visit us online at www.computerworld.com/intranets

Elisabeth Horwitt, a freelance writer in Newton, Mass., spoke with Brett Monello, manager of corporate Web systems for the Mountain View, Calif.-based supplier of high-performance interactive computing systems, as well as with SGI intranet technologist Robin Hayes and Steve O'Connor, director of information systems.

THE CHALLENGE

Keeping key applications and sites going at acceptable performance levels without stifling the creativity of their developers or stepping on the toes of local Webmasters. Applications include electronic timecards, a reporting interface to an Oracle database that the finance people rely on and applets written in Sunsoft's Java and Netscape Communications Corp.'s Javascript.

THE MANAGEMENT INFRASTRUCTURE

Monello reports to the CIO. His nine-person group has overall responsibility for maintaining satisfactory availability, performance and content quality across Web systems and maintaining about a dozen production Web servers. A central IT network management group has direct responsibility for monitoring and troubleshooting the network that carries both intranet and other application traffic. Management of individual Web servers and applications is in the hands of the hundreds of Webmasters.

NETWORK MANAGEMENT TOOLS

The IT group uses Cabletron Systems, Inc.'s Spectrum 3.0 as a corporate network management platform. To monitor and analyze bandwidth usage and network traffic across various network segments and devices, it uses a variety of tools, including Fasdane Systems Ltd.'s Xni, SGI's own Performance CoPilot and Network Visualizer, and Network General Corp.'s Sniffer, as well as product-specific monitoring tools such as ForeView, Fore Systems, Inc.'s tool for monitoring its own ATM switches.

Tools such as Xni and Sniffer also enable the group to analyze intranet-specific network usage, O'Connor says.

KEEPING THE CONNECTION

Rather than try to centrally monitor URLs for broken or obsolete links, Monello's group has built custom tools into the internally developed corporate intranet search engine. The tools can be easily set up to notify a Webmaster "every morning, or via an alert system, when a bad link is detected," Monello says.

MAINTAINING RESPONSE TIME

Given the scarcity of extra network bandwidth, particularly for remote sites, Monello's group has been trying to educate Webmasters about tools and practices to minimize Web traffic. One such tool is the proxy server, which caches Web data locally, minimizing the need to access a remote server over the network.

The group also provides intranet authors with tips on how to make their applications "network-friendly," Monello says. For example, building validation into an HTML form helps ensure that a filled form doesn't go out over the network and then return with an error message because somebody forgot a hyphen or a phone number.

And sometimes, when an application or site's response time has degraded, a Webmaster or author is advised to move it up to a bigger server or to a location more central to people accessing it.

SECURITY

With a decentralized intranet, how much security is invoked depends largely on who is running a given server, Monello says. Many sites use the standard security embedded in Netscape servers and browsers, such as password access files. Others subscribe to WebSafe, an internally created tool that provides authorization and authentication on a centralized database using Netscape's NS application programming interface.

> **Keeping key applications and sites going at acceptable performance levels without stifling developer creativity or stepping on toes is SGI's key challenge.**

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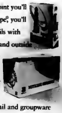

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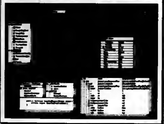

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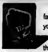

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SYMANTEC.

Firm to ship color scanners for PCs

By Matt Hamblen

LINOTYPE-HELL CO. in Hauppauge, N.Y., recently announced it will ship Windows-compatible color scanners this spring.

Desktop scanners will cost from $1,850 to $7,250 for Windows 95 and Windows NT. They all will come with LinoColor VisualLab EZ software.

The VisualLab EZ software has distinguished the LinoColor products in the Macintosh world and provides "much, much higher quality" color correction and color management than several competitors, said analyst Michael Kieran, president of DPA Communications in Toronto.

Kieran said LinoColor competes with another color correction software called FotoLook from the Agfa division of Bayer Corp. in Ridgefield Park, N.J.

Kieran said such color correction software products help scanner users save time. He estimated that a user can scan up to 10 images per hour with VisualLab EZ, compared with two to three images per hour with competing products.

'SIMPLY OUTSTANDING'

"The software is simply outstanding," said Robert Gryn, president of Ivico, Inc. in Roslyn, N.Y.

He has used a Sapphire scanner from the LinoColor line on Windows NT for two months in his import/export business.

Gryn said the color correction software is adjusted once to a user's computer and works automatically and "more intelligently" than a user can do each time thereafter. □

Apple unveils servers

CONTINUED FROM PAGE 43

604E processor — the Apple Workgroup Server 9650/233 and the Workgroup Server 7350/180. Apple is aiming the servers at the education, publishing and business markets.

For either server, users can choose from one of three software bundles: the Application Server Solution, AppleShare Server Solution or Apple Internet Server Solution (see chart, page 43).

In the past, Apple has been chided by observers for not demonstrating its commitment to business users, offering only a handful of servers.

To quell those critics, Apple next month plans to release the Workgroup Server 9650/233 running at 233 MHz, aimed at workgroups with both Macintosh and Windows users. The server has a removable CPU card, 512K bytes of Level 2 cache and 64M bytes of RAM expandable to 768M bytes.

It also has three SCSI channels (including one Ultra/Wide channel of 40M bytes), a choice of a single or dual 4G-byte hard drive, a 12-speed CD-ROM drive, six Peripheral Component Interconnect (PCI) slots and 10Base-T and Ethernet connections.

The other server, the Workgroup Server 7350/180, features a 180-MHz PowerPC 604E processor on a removable CPU card, 256K bytes of Level 2 cache, 48M bytes of RAM expandable to 512M bytes, a 4G-byte hard drive, a 12-speed CD-ROM drive, three PCI slots and networking connections. It also includes an open expansion bay for an additional hard drive or other removable media.

Shawn Brady, a manager in the graphics services division at Knight-Ridder/Tribune Graphics Network in Washington, said his company uses a Windows NT-based Internet server.

SAVING SOME TROUBLE

Brady said that having both the Macintosh clients and servers at his company running the same operating system would eliminate some hassles.

The division uses 60 Macintoshes to create and distribute graphics to news organizations worldwide.

"Having an Apple Internet server would make it easier for us to see how pages look, transfer files and drag and drop right from the Mac OS-based client. Currently, it's difficult to do any of that," Brady said. □

Updating ancient bisync host links

CONTINUED FROM PAGE 43

emulator of their liking — including products such as Attachmate Corp.'s Extra, Wall Data, Inc.'s Rumba and other Internet-enabled emulators — while the server handles the communications back to SNA or non-SNA hosts.

MULTIPLE MAINFRAMES

For example, one Western communications firm is testing the CommServer for use with its VM/VSE mainframe, although it also runs SNA mainframes in-house.

The CommServer requires only a 286 processor to handle its duties.

The hardware requirement was certainly helpful to a quick start-up at the communications firm. With only the 286 PC requirement, "we are using what would have been a throwaway, or donation PC, as our server," said an information systems manager at the firm, who asked to remain anonymous.

Because the server needs only DOS to run, users can refurbish old 286 PCs sitting in the corner.

While he could have put together another mix of products to get the same job done, "CommServer is smoother and quicker and has a moderate price," the IS manager said.

On the client side, Union Planters Corp. took advantage of Data Interface's DOS support to let its DOS-based loan application update mainframe data from newer Windows-based PCs, without requiring a complete code rewrite.

Even though the Knoxville, Tenn., bank now uses a Windows loan application program, the DOS support saved valuable time by keeping access to the mainframe available, said Melissa Wiggins, a LAN administrator at Union Planters.

Data Interface's CommServer costs from $1,295 to $5,495, depending on the number of sessions, and the Workstation with DOS support costs $295. □

NEW PRODUCTS

GLOBAL VILLAGE COMMUNICATION, INC. has announced two 56K bit/sec. fax modems, the TelePort 56 family.

According to the Sunnyvale, Calif., company, the products were designed for Macintosh users who want both X2 and K56flex technologies to access Internet service providers and online services. The modems can nearly double the speed of Internet downloads.

Pricing starts at $219.

Global Village Communication
(408) 523-1000
www.globalvillage.comm

LANIER WORLDWIDE, INC. has announced the Lanier 5603 Series of full-color copiers and printers.

According to the Atlanta company, the products produce 3 page/min. in full color with the ability to copy on both sides of a page.

Pricing starts at $15,495.

Lanier Worldwide
(800) 708-7088
www.lanier.com

KENSINGTON TECHNOLOGY GROUP has announced SmartSockets, a line of surge protectors to safeguard high-end computers with modems.

According to the San Mateo, Calif., company, color-coded rings are used for plug and outlet connections.

Pricing starts at $20.

Kensington Technology Group
(415) 572-2700
www.kensington.com

OPTIQUEST, a ViewSonic company, has announced the Q100, a 20-in. monitor for graphics and multitasking business applications in PC and Macintosh settings.

According to the Walnut, Calif., company, the monitor includes an 80-Hz refresh rate and a 1,600- by 1,280-pixel resolution. An antireflection screen was designed to reduce eye strain.

The price is $1,149.

Optiquest
(909) 869-7976
www.viewsonic.com

FALCON SYSTEMS, INC. has announced FastfilePro 5000 and FastfilePro 9000, data access servers.

According to the Sacramento, Calif., company, both models include hardware-based RAID architecture for simultaneous file access in workgroups with a variety of platforms.

The 5000 is a departmental server for smaller workgroups with 64M bytes of standard RAM that can be upgraded to 256M bytes. The 9000 model was designed for enterprises, is powered by a 200-MHz Pentium Pro microprocessor and can be configured with up to 3.2T bytes of disk storage.

Pricing for the 5000 starts at $37,500; the 9000 starts at $175,660.

Falcon Systems
(916) 641-7200
www.falcons.com

IBM set to offer PC financing

CONTINUED FROM PAGE 43

years. Pricing for packages depends on the types of products and services selected.

Kent Polzin, manager of technical operations at Simmons Co. in Atlanta, said he has been looking to partner with a company that would allow him to replace hardware on a uniform basis.

"If we could partner with a vendor and get that [hardware deployment] cycle in place, that might have some value," Polzin said.

IBM's SystemCare program will provide the following:

- Integration services
- Technical support
- System configuration services
- Financing

He said that although some features of the program, such as help desk support, aren't attractive to him, other aspects of technical support are.

SystemCare also includes new IBM hardware, including the IBM PC 300GL, LAN Client Control Manager, ThinkPad 760XD and ThinkPad 760XL, all of which were announced earlier this month. □

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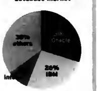
Briefs

1996 relational database market



Total market - $5.7B

Source: Dataquest, San Jose, Calif.

Imaging software

WhiteWare Technologies, Inc. in Park City, Utah, is shipping ViewWise 4.2, an upgrade of its imaging software. Version 4.2 now supports 32-bit Windows clients and Novell, Inc. NetWare 4.x. It also complies with the Open Document Management application programming interface, which will let users exchange information among document imaging systems.

Corel ships DOS suite

Proving that DOS isn't dead, Corel Corp. in Ottawa has shipped its WordPerfect Suite for DOS. The suite includes updated versions of the WordPerfect word processor, Quattro Pro spreadsheet and Corel Presentations graphics package. DOS fans also get CorelShell, a program that lets users create menus of programs and commands for switching among applications. The $199 suite includes more than 1,000 fonts. An upgrade costs $149.

Forte Conductor

Forte Software, Inc. in Oakland, Calif., in the fourth quarter will ship a new server for distributed workflow applications. Conductor is based on Forte's fourth-generation language application development environment. Conductor's client-based components run on Windows, Macintosh and Motif. The server software supports Unix and Windows NT. Pricing will range from $2,600 to $4,000 per development license.

Sales force automation courts the 'net

▸ *Releases, alliances to link sales in cyberspace*

By Mindy Blodgett

THE $2.5 BILLION sales force automation software market has heated up in the past few weeks as several leading vendors released new products and announced alliances aimed at harnessing the Internet.

The products range from low-end contact and opportunity management software from Borealis Technology Corp. in Carson City, Nev., to advanced interactive selling and configuration software from BT Squared Technologies in Atlanta.

Aurum Software, Inc. in Santa Clara, Calif., a leading vendor of customer relationship software, last week announced an alliance with Beologic in Copenhagen. Beologic makes interactive selling systems and configuration software. The companies plan to jointly release software using the Internet as a distribution channel for sales information. Products are expected by midyear.

SALES FORCE LINKED

Mike Caretto, director of information systems at Pacific Care, a health maintenance organization in Cypress, Calif., is rolling out a sales force automation project for 900 employees who use Aurum software.

The project will link the 600-member sales force with the rest of the enterprise, improving workflow and contact and opportunity management.

Caretto said he would like to be able to use the Internet for World Wide Web-enabled selling by the end of next year.

"I like the fact that Aurum is working on a Web solution, because I think that is the future," he said.

Judith Hodges, an analyst at International Data Corp. in Framingham, Mass., said the Aurum/Beologic alliance is part of a larger trend. "Using the Web for

Sales force, page 50

SELLERS MARKET

BT Squared Technologies' Interactive Selling System software:

- **Configuration designer property that enables configurations for complex, made-to-order products**
- **Integrated workflow, which streamlines reviews and approvals among departments**
- **Pricing ranges from $750 to $3,500 per user, depending on modules included**

Think global, act local with real-time access

▸ *Internet connection start-up taps Oracle tools*

HomeGate is a roaming Internet access service that lets subscribers link to the Web and E-mail via a local phone number from 690 cities worldwide

By Sharon Gaudin

HOMEGATE CORP., a Torrance, Calif., start-up, is using tools and databases from Oracle Corp. to help get its roaming Internet connection business off the ground.

HomeGate is offering subscribers Internet access through a local call from 690 cities in 160 countries.

That could mean a substantial savings for frequent international travelers, said Judith Hurwitz, president of Hurwitz Group, Inc. in Newton, Mass. "When I travel, I have to call into our 800 number back in the old U.S., and that's still a long-distance charge. It gets pretty expensive fast," she said.

HomeGate's challenge was to put together a system that could monitor 1,100 points of presence around the globe and connect subscribers to the Internet and their electronic mail from all over the world.

And the company had to get it done in six months.

HomeGate used Oracle's Designer 2000 and Developer 2000 tools to connect live World Wide Web pages directly to the Oracle database, according to Hans Kristiansen, chief technology officer at HomeGate.

"It allows our people to do database look-ups directly from the Web, because the page is built dynamically. We can check out users' connection statistics — how long they've been connected and when — live right off our databases," he said.

ON THE FLY

And with offices on three continents, having a real-time system is key. "It's important for us to be able to access this data on the fly. We need to operate in real time no matter where we are," Kristiansen said.

"We have a 24-hour help desk, so we can service users in any time zone, any time of the day. So our people need to be able to access that information in real time," he said.

Hurwitz said that could be an important ability for many businesses.

"A lot of people need live information. If they depend on their data being live, then dynamic Web pages would probably be a great benefit," she said. "There's lots of businesses this

Access, page 50

FINANCIAL TOOLS

Baan links with Hyperion product line

By Randy Weston

THE BAAN CO. is beefing up the financial module of its enterprisewide business process system with offerings from high-end financial software vendor Hyperion Software Corp.

Baan, in Menlo Park, Calif., lacked features such as a consolidated reporting application that would allow users who operate internationally with multiple cost centers to view and analyze financials easily at a corporate level. Analysts said the deal, in which the software vendors will integrate the two product lines, will benefit customers of both Baan and Hyperion.

The two firms plan to build one financial module that will merge their products more closely.

Baan's current financial offering is transaction-based and

Baan, page 50

Baan boosts product line

CONTINUED FROM PAGE 49

doesn't contain features such as the ability to consolidate data from multiple cost centers in to a central application for analysis, as Hyperion's product does. Baan competitors such as Oracle Corp. already offer such features as an integrated piece of their application package.

On the flip side, Baan offers Hyperion customers multinational transaction capabilities and tight integration with the larger enterprise resource planning system.

"The better a company can analyze financial information, the more able it is to adjust the way it does business," said Jack Maynard, an analyst at Aberdeen Group, Inc. in Boston.

Company	Contribution
Hyperion	Budgeting, consolidation, reporting
Baan	Multinational accounting

TWO-PHASE ROLLOUT

The first phase of the integration is to link Hyperion's Enterprise and Pillar products with Baan's transactional financial offering in the Baan IV application package. It is due for delivery by the end of June.

In the second phase, the two sides plan to build one financial module that will merge their products more closely, delivering a package with one user interface. It is due to ship later this year or early next year with the Baan V application package.

The main obstacle to integration is the learning curve for developers at the two companies, according to Clare Gillan, an analyst at International Data Corp. in Framingham, Mass.

Hyperion engineers need to learn to use the Baan tool set, and Baan engineers need to learn new user interface design principles because Hyperion's highly functional interface will be used for the single product.

Gillan said any improvements to the user interface that come out of the joint venture will be ported to the entire Baan suite, a large task to complete in a short period.

But Sensormatic Electronics Corp. in Boca Raton, Fla., is happy to wait if it takes a bit longer. The $1 billion maker of security devices such as closed-circuit televisions and retail electronic security tags gambled on a Hyperion/Baan system for its business prior to the announcement.

"We lucked out," said Dennis Torrell, manager of information systems at Sensormatic.

"The reason we picked Hyperion was for the [financial] consolidation application. We wanted it so we can bring all of the various financial [centers] we have within Sensormatic together [in one report] for month-end [accounting] closings," he said.

Sensormatic has more than 75 cost centers. Torrell said his office had planned to build interfaces between the two software systems so data coming out of the Baan application would have to be fed into the Hyperion piece.

That would have created a delay in closing, he said.

But Baan and Hyperion are taking care of that task now. □

Sales force

CONTINUED FROM PAGE 49

configurations and selling is the future of [sales force automation]," she said.

But simple contact-management software from Borealis will do the trick for Bruce Mabel, manager of marketing data systems at Heidelberg USA, Inc., a manufacturer of printing presses just outside of Atlanta

"We wanted a way to customize our opportunity and contact-management needs, and Borealis is very customizable," Mabel said. "We can upgrade the applications as we build the system."

Other recent sales force automation announcements include the following:

■ SalesLogix Corp. in Scottsdale, Ariz., is shipping its Sales Information System, software designed to consolidate customer information and deliver sales forecasts and reports to the sales force. Pricing wasn't available.

• Clarify, Inc. in San Jose, Calif., last week introduced ClearTelebusiness, software which will provide lead management, marketing and sales support. The software costs $3,000 per user license, plus a $15,000 application fee. □

Access

CONTINUED FROM PAGE 49

would apply to — stock brokers, people in retail, the financial area."

But Hurwitz also said there is a lot to think about when enabling employees to retrieve live information. She said information systems managers need to think about security — who can access what information, how quickly that access can be revoked and how to keep unauthorized people from accessing critical information.

Kristiansen said he was surprised at how fast he could develop the dynamic Web page system.

"The design cycle is much shorter than it traditionally would be, because a lot of the procedures are done within the tools and not on paper," he explained. "If I was to make up a procedure model, I could specify the model in a text and graphical format, and the tool would build the application. It does all that coding for us." □

COMPUTERWORLD

For these and other related links, point your browser at www.computerworld.com/links/970428sfalinks.html

► The Sales Automation Association www.saaintl.org/about.html

► Sales force automation white papers www.salesperformance.com/papers.htm#r

► The sales automation dilemma www.mhdg.com/dilemma.html

S H O R T S

HP aims at SAP shops

Hewlett-Packard Co. in Palo Alto, Calif., this month announced plans for a set of data warehousing services and software for midsize users of SAP AG's R/3 applications. The Open Warehouse Suite for SAP R/3 is expected to be available this summer.

Apple Web software

Apple Computer, Inc. recently started shipping its Personal Web Sharing server software. The software costs $19.95 and is available at Apple's World Wide Web site (www.apple.com). It was designed for individuals or small workgroups that want file-sharing capabilities via their Mac OS-based systems.

APRIL 28, 1997

COMPUTERWORLD emmerce

THE MAGAZINE FOR ELECTRONIC COMMERCE STRATEGISTS

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TERRY JONES

EDITOR'S NOTE

Emmerce Yourself

A little over a year ago, the Internet and the World Wide Web were being shamelessly touted as a cure-all for countless business and technology woes. Want to enter the global market? Go on the Web! Need to smooth the supply chain among your business partners? Hook your databases to a Web server!

But we're a little wiser now, aren't we? Sure, there are glimmers of success here and there, but how much blood, sweat and dollars did it take to get there? Aside from technology and service providers, businesses are putting billions more into the Internet than they're getting out of it — $196 billion in the year 2000, according to Forrester Research, Inc.

Even Amazon.com — quite possibly the most touted Internet-based business in the world — showed up unprofitable when it uncovered its numbers in preparation for its recent $300 million initial public offering.

The fact is, particularly for established companies, the Internet and the Web pose challenges that are overshadowed only by the size of their potential. That's why today it may be more interesting to talk about the reality of who and what will make electronic commerce work than to theorize about how it will change our lives.

That's what Emmerce is all about: delving beneath the phenomenon of the Web into the pivotal technologies and business challenges that enshroud the digital economy in the business-to-business and business-to-consumer sectors.

In this issue, read about the new middlemen — companies such as Auto-by-Tel and GEIS's Trading Process Network — that are shaking up the electronic commerce world but have yet to find a profitable way to do so. We also have a feature on parametric searching — a challenging technology but also a key one for companies with a large database of goods to sell. You're also invited to take the commerce quiz to see where you stand on the EC IQ scale.

But our mission doesn't stop with the print magazine. Emmerce also has an online companion. Updated fortnightly, our Emmerce Webzine offers extended coverage to the print publication with quick follow-up stories and links to related online resources, demos and Web sites. You'll also find lots of audio sound bytes and interactive discussions for sharing your experiences — good, bad and ugly.

With electronic commerce in its infancy, we too are learning as we go. It's time to buckle up and get ready for an interesting ride.

> Emmerce is about delving **BENEATH** the phenomenon of the Web into the **TECHNOLOGIES** and challenges that enshroud the **DIGITAL** economy.

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COVER ART BY NORMAND COUSINEAU

Contents

COVER STORY

THE EXCHANGE

Trends, ideas and issues in electronic commerce

Volkswagen's Commerce Plan Shouldn't Bug Dealers

VW's Web approach includes low-margin sales and credits to local dealers

BY MARK HALPER

Volkswagen, Inc.'s Jack Shafer knows he has a potential conflict on his hands, and he's doing everything he can to avoid it.

Shafer is manager of new technology at the Auburn Hills, Mich.-based subsidiary of the German car maker and is overseeing the company's efforts to sell products through its World Wide Web site. It seems like a good idea. As Shafer pointed out, the demographics of VW buyers and Web surfers are remarkably similar in age, disposable income and technological proclivities.

But VW has a loyal dealer base that has stuck with the company through lean years in this country. And VW's fortunes here have recently begun to turn. If all of a sudden VW were to start selling products directly through its Web site, what would the dealers say?

"They are afraid of the ramifications," Shafer said.

Shafer and Volkswagen face a dilemma confronting companies across all industries. As vendors hurtle into the electronic commerce age, how do they set up cybershop without competing with their existing sales channels?

In some cases, such competition is inevitable. But Shafer said VW dealers don't have to worry. The company has drawn up an electronic commerce strategy intended to work with, not against, them. The plan is simple. Every sale generated by the VW site is credited to the dealer located nearest the purchaser.

The strategy makes sense to at least one VW dealer — Bob Lewis, owner of Bob Lewis Volkswagen in San Jose, Calif. "The Internet is too big, too important for VW to ignore. They should give the consumer as much information as they can about their product. As long as they sell through an authorized dealer, it's not a threat to us."

In order not to alarm its dealers, VW is introducing the idea slowly, "selling" only promotional, low-margin items such as coffee mugs, caps and T-shirts, which the company dubs "trinkets and trash." It does not include automobiles or dealers' other sacred cow, spare and replacement parts. Shafer said

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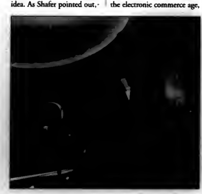

PHOTOGRAPH BY MICHELLE ANDONIAN

THE Exchange

TRENDS, IDEAS AND ISSUES IN ELECTRONIC COMMERCE

Volkswagen's Commerce Plan Shouldn't Bug Dealers

VW's Web approach includes low-margin sales and credits to local dealers

BY MARK HALPER

Volkswagen, Inc.'s Jack Shafer knows he has a potential conflict on his hands, and he's doing everything he can to avoid it.

Shafer is manager of new technology at the Auburn Hills, Mich.-based subsidiary of the German car maker and is overseeing the company's efforts to sell products through its World Wide Web site. It seems like a good idea. As Shafer pointed out, the demographics of VW buyers and Web surfers are remarkably similar in age, disposable income and technological proclivities.

But VW has a loyal dealer base that has stuck with the company through lean years in this country. And VW's fortunes here have recently begun to turn. If all of a sudden VW were to start selling products directly through its Web site, what would the dealers say?

"They are afraid of the ramifications," Shafer said.

Shafer and Volkswagen face a dilemma confronting companies across all industries. As vendors hurtle into the electronic commerce age, how do they set up cybershop without competing with their existing sales channels?

In some cases, such competition is inevitable. But Shafer said VW dealers don't have to worry. The company has drawn up an electronic commerce strategy intended to work with, not against, them. The plan is simple. Every sale generated by the VW site is credited to the dealer located nearest the purchaser.

The strategy makes sense to at least one VW dealer — Bob Lewis, owner of Bob Lewis Volkswagen in San Jose, Calif. "The Internet is too big, too important for VW to ignore. They should give the consumer as much information as they can about their product. As long as they sell through an authorized dealer, it's not a threat to us."

In order not to alarm its dealers, VW is introducing the idea slowly, "selling" only promotional, low-margin items such as coffee mugs, caps and T-shirts, which the company dubs "trinkets and trash." It does not include automobiles or dealers' other sacred cow, spare and replacement parts. Shafer said

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VW'S JACK SHAFER IS SETTING UP A DEALER-FRIENDLY CYBERSHOP

PHOTOGRAPH BY MICHELLE ANDONIAN

COMMERCE BY NUMBERS

Web purchasing between October 1996 and October 1995 was up in 16 categories. The study surveyed 15,000 frequent and infrequent Web purchasers. The Top 8 categories are listed below.

TRAVEL	100[illegible]
STOCKS AND BONDS	[illegible]
MUSIC	[illegible]
BOOKS	[illegible]
HARDWARE OVER $50	[illegible]
SOFTWARE UNDER $50	21[illegible]
SOFTWARE OVER $50	20[illegible]
HARDWARE UNDER $50	20[illegible]

Source: The Hermes Project at the University of Michigan Business School (sgupta@umich.edu). Based on data from the Georgia Tech Research Corp (www.cc.gatech.edu/gvu/user_surveys)

Continued from page 5

he does not anticipate selling these until at least 1998.

That's probably a good idea because just the mention of VW-initiated parts sales is enough to raise dealer hackles. "That absolutely would be a conflict if they started selling parts," said Mike Sullivan, owner of Lexus, Isuzu and Volkswagen in Santa Monica, Calif., who agreed the "trinkets and trash" program was not a concern.

Shafer said he realized that although VW's plan entails crediting the dealer, that notion won't necessarily sink in right away. The company is, therefore, proceeding slowly. "We're doing this in stages so the dealers become comfortable with it and are not threatened by it," he said.

> ***"That absolutely would be a conflict if they started selling parts."***
>
> **—MIKE SULLIVAN,**
> **VW DEALER**

VW is approaching electronic sales so cautiously, it is not yet offering accessory items such as mud flaps, floor mats and spoilers. These items will probably be the next VW offers online. With these sales as well, the dealer nearest the buyer will receive a normal markup on the item. The buyer will have a choice of receiving the product from VW or from the dealer.

"Dealers will have an infinite return on investment because there is no investment," Shafer said.

VW is, however, encouraging its dealers to develop their own Web sites and to establish online facilities for promoting products and taking orders. It is here that Shafer is noticing resistance.

"We're really dragging these people kicking and screaming onto the Internet, but that's our No. 1 goal right now," he said. "There are other people all over the Internet today trying to sell new cars, and they're presenting a formidable challenge."

The "other people" are electronic middlemen such as Irvine, Calif.-based Auto-By-Tel. This new breed of car salesman lists new products from various car manufacturers and refers buyers to dealers that pay to be part of the middleman's service (see story page 10). A VW dealer who does not belong to an Auto-By-Tel-type service competes with any dealer that is a member. Thus, Shafer pointed out, it behooves any dealer to aggressively develop its own Web-based marketing and sales plans.

"The No. 1 thing I preach is for them to learn about this new medium, to become a part of it," Shafer said. "If they don't learn the medium, they will lose sales this year."

Volkswagen has staked claim to not one but three URLs: volkswagen.com, volkswagon.com and vw.com.

Halper is a freelance writer in San Francisco.

Commerce**PULSE**

Safe and Secure

CALL IT HYPE, but to Internet businesses, security concerns are all too real. InsWeb Corp. in San Mateo, Calif., has constructed double firewalls to keep out intruders. "We get five or six attempts to break in per night," said Darrell Ticehurst, president and chief executive officer of the insurance marketplace purveyor.

Down the road is San Jose, Bill McKiernan agreed. McKiernan, CEO at CyberSource Corp., an online computer reseller, recalled one week in '95 when the volume in fraudulent sales (to people with illegitimate credit cards) exceeded legitimate sales.

"We thought about several solutions — even shutting down or becoming a membership club," McKiernan remembered. But instead, the company designed fraud detection software that watches for irregularities in purchase requests. It has applied the same algorithms to detect when a buyer is attempting to purchase downloaded software in a country banned by federal law from receiving the product.

CyberSource is now so sure of its security, it is selling itself as a commerce service provider to companies in other industries.

— MARK HALPER

Cerfing with Vinton

VINTON CERF — the Internet pioneer who seems to know almost everything when it comes to Internet technology, penetration and usage — gets very quiet when it comes to making money on the Web (www.mci.com/technology/ontech/powerpoint.shtml.) "Anyone asking the business opinion of an engineer deserves what he gets," he noted. "I don't think I would understand a business model if it jumped up and bit me in the nose. That's why I don't have P&L responsibilities [at MCI]. All I do is spend money."

Booming business

Online business at Charles Schwab Corp. is booming, said Art Shaw, a senior vice president at the San Francisco discount brokerage. In early March, the firm hit a milestone: 700,000 accounts, with $50 billion in assets, are doing business online via telephone, a 12-year-old private network and the Web. "That's the number of take-offs and landings at LAX in a given year," Shaw said. Shaw wouldn't reveal the percentage doing business via its year-old e-Schwab Web site, where users can place trades of up to 1,000 shares for $29.99.

ILLUSTRATIONS BY SUSAN LEVAN

WILL YOUR EC STRATEGY SURVIVE?

TAKE OUR **COMMERCE QUIZ** TO RANK YOUR **COMPANY'S EC IQ**

Strategy

1. **Which best describes your company's approach to electronic commerce?**

☐ We've put up a Web page **1 POINT**

☐ Several departments are pursuing unrelated EC initiatives **3 POINTS**

☐ We have embarked on a total-company EC initiative that will significantly change the way we do business **5 POINTS**

COMMENT: An EC strategy requires a top-down approach and cross-functional collaboration. In fact, according to Gartner Group, enterprises that manage EC as a series of fragmented IT projects will be noncompetitive by 1998 and locked out of EC channels by 2001.

2. **What is the main intent of your electronic commerce endeavor? (1 point for each)**

☐ Transaction processing with electronic payment

☐ Transaction processing without electronic payment

☐ Coordination with business partners such as inventory management

☐ Collaboration with business partners such as sharing data or videoconferencing

☐ Customer self-service: order status, problem resolution, etc.

☐ Information distribution

☐ Billing and/or other collection services

COMMENT: One way to uncover several EC opportunities is to dissect the buying/selling process into its various elements, from the buying side and the selling side, and with your customers and suppliers. Then think about how you can apply each to the Web.

3. **What is your main electronic commerce business model?**

☐ Business-to-consumer **3 POINTS**

☐ Business-to-business **5 POINTS**

COMMENT: Forrester Research predicts that most of the action in the next five years will be in the business-to-business area. Retail will grow to only $7.5 billion in 2000, while business-to-business is projected to reach more than $66 billion by 2000.

Organization

4. **How did you change your organization to accommodate your electronic commerce initiatives?**

☐ We created a new organization that includes cross-functional resources, including marketing and IT **5 POINTS**

☐ We created a temporary electronic commerce task force **3 POINTS**

☐ We gave IT the job **1 POINT**

☐ No change **NO POINTS**

COMMENT: Companies should focus their electronic commerce efforts in a separate "Internet Commerce Group" for several reasons: If IT drives, it will underestimate the customer focus. If marketing drives, it will underestimate the effort to build and maintain the presence. The group also needs to maintain strong links to other corporate functions and manage intermediaries (see story page 10). This group will also become the central source for best practices in your company and will help propagate this knowledge within the company.

5. **Is your EC group independently funded and empowered to make decisions?**

ILLUSTRATION BY J.D. KING

☐ Yes **5 POINTS**
☐ No **1 POINT**

COMMENT: Electronic commerce on the Internet is a new marketplace with new characteristics and new rules. You can't apply old thinking and old measures to it, so it needs to have a bit more freedom than the rest of the company.

Operations

6. **How often do you refresh the content on your site?**

☐ Every time someone logs on **5 POINTS**
☐ Daily **5 POINTS**
☐ Weekly **5 POINTS**
☐ Monthly or less **1 POINT**

COMMENT: Repeat visitors mean constantly refreshed content. Also, don't make the mistake that LL Bean did: We visited its Web site on Feb. 14, and it still said "Happy Holidays."

Technology

7. **Give yourself 1 point for each technology category in which you can claim significant experience:**

☐ Indexing and navigation technology. How do people find you, and how do they find what they're looking for? (See story page 16.)

☐ Authentication: How will you know whom you're inviting in to do business? You must be able to add, drop and screen partners dynamically.

☐ Personalization: Can you customize your site for each visitor? Remember who they are when they return? Display appropriate ads based on their personal profiles and where they've been at your site? Can you capture customer knowledge (e.g., configuration data) that locks people in? Cisco Systems, Inc. (www.cisco.com) and Garden Escape (www.garden.com) are good examples.

☐ Integration: Can you tie your Web site in to your legacy systems? Either the in-house talent to handle this or a relationship with an outsourcer is critical.

Results

8. **What results has the company been able to measure? (multiple answers allowed)**

☐ Steadily increasing daily/weekly/monthly hits **1 POINT**
☐ Higher percent of business partners online **3 POINTS**
☐ Higher revenue **5 POINTS**
☐ Higher profits **5 POINTS**
☐ Increased market share **5 POINTS**
☐ Lower costs **3 POINTS**
☐ More satisfied customers **5 POINTS**
☐ Sales leads **5 POINTS**
☐ Streamlined business processes **5 POINTS**
☐ Better collaboration with business partners **5 POINTS**
☐ None **NO POINTS**

COMMENT: Dollars are the best metric because business relates to them best, according to Forrester Research. If you can't measure dollars, then tie the return-on-investment efforts to quality or customer satisfaction, which are still somewhat measurable. You can also compute the cost of a 1-point improvement in quality or customer satisfaction.

Commitment

9. **How that your company is involved with electronic commerce, why will it stay committed?**

☐ We have hard proof that electronic commerce "works." **5 POINTS**
☐ We believe electronic commerce can make us more competitive and are waiting for hard proof. **3 POINTS**
☐ We are still in development and not sure if there is a payoff. **1 POINT**

COMMENT: Try to measure your progress initially in order to give yourself ammunition for future success. Gartner Group suggests jump-starting an electronic commerce initiative by giving it to a business unit with profit/loss responsibility and, when finished, rolling it back into existing processes.

10. **Which of the following best describes your electronic commerce readiness from a human resources perspective? (multiple answers allowed)**

☐ Most of the work is outsourced **1 POINT**
☐ IT and other resources are being trained on Internet technologies and concepts **2 POINTS**
☐ We have hired a number of new Internet and electronic commerce specialists **3 POINTS**
☐ We have several openings for EC/Internet jobs **4 POINTS**
☐ Many of the new openings are nontechnical jobs **4 POINTS**
☐ Our human resources group is well tuned to this and is helping us write new job descriptions and recruit new hires **5 POINTS**

COMMENT: Internet commerce is creating a whole new range of jobs that didn't exist before – technical and nontechnical. Major areas to look at include creative development; software development; Java and Javaware; marketing and sales; networks and security; Webmasters; intranets; and content management.

This quiz was developed with help from Walid Mougayar, Internet commerce consultant and author of *Opening Digital Markets* (walid@cybermanagement.com); Susan Cohen, president of the Aarons Group in Marblehead, Mass.; Forrester Research, Inc. in Cambridge, Mass.; and Gartner Group, Inc. in Stamford, Conn.

For an expanded version of this quiz, visit our companion site at www.computerworld.com/emmerce in mid-May. We hope to gather enough responses to publish statistics showing how you stack up against your peers.

Meet the **NEW** Middlemen

They're establishing new rules for commerce

By Mark Halper

They used to say the Internet, with its direct vendor-to-buyer sales potential, endangers the middleman as a species. Today, it's clear the middleman has also heard about cyberspace. Evolving out of today's primordial cyber soup is a new type of distributor and deal maker. This technologically advanced intermediator is outfitting himself with GIFs, CGIs and database analysis tools in hopes of becoming highly visible and, once spotted, attractive as a business pollinator and consummator.

Meet the purveyors of electronic marketplaces. Armed with the notion that businesses waste millions of dollars a year finding and sizing up one another and then practicing costly buying and selling rituals, these new cyber creatures are selling themselves as money- and time-saving matchmakers. Although they embody many different physical-world entities (see chart page 14), they share a basic claim: They promise to centralize suppliers in one spot, organize them in accessible ways, eliminate costly human interaction, automate bureaucratic, time-consuming processes and cut costs.

Two well-known business-to-business marketplaces — Cambridge, Mass.-based Nets, Inc. and Rockville, Md.-based General Electric Information Services (GEIS) — claim to slash time-consuming purchase approval processes and reduce business travel. Irvine, Calif.-based Auto-By-Tel Corp. says its car sales service eliminates negotiating with salesmen. San Mateo, Calif.-based InsWeb Corp. says it offers insurance premiums at 20% to 30% discounts.

BUT WHERE'S THE MONEY?

But these electronic kasbah owners also share a common problem: securing a money-making business model as they grapple for the proper mix of buyer and seller fees, transaction charges and membership dues.

"As early adopters, the current players will have a real hard time making money," said Stan Lepeak, an analyst at Meta Group, Inc. in Stamford, Conn. Lepeak said he has brighter hopes for electronic data interchange stalwarts such as Sterling Commerce, Inc. or GEIS, which are already involved in arranging online communities. But even in this case, players would have to migrate to a radically different business model. "It's a higher-volume, lower per-transaction revenue model, and there's also not much of any revenue from the network," he said.

What's more, virtual life imitates physical life: These middlemen need to offer buyers something so good they forgo the vendor's own Web site or continue working through more traditional channels.

WARNING: SHAKEOUT AHEAD

Indeed, electronic marketplaces are not for everybody. Bob Lewis Volkswagen in San Jose, Calif., for instance, has already come and gone from the Auto-By-Tel habitat. The dealer decided to put resources into its own Web site instead (see story page 5).

And in some categories, there are just too many options for all entries to survive. Consumer shopping malls number in the 3,000 to 4,000 range, according to Bruce Guptill, research director at Stamford, Conn.-based Gartner Group, Inc. And you can count as many as 10 electronic marketplaces in insurance, said Gay Slesinger, vice president at Giga Information Group, a market research firm in Cambridge, Mass.

Typical of any youthful business, electronic marketplaces are struggling to turn a profit (see story page 13). But analysts predict their fortunes will change. "The lure is that you're working in a semi-protected environment," Lepeak said. "There's someone in charge offering a prequalification that other participants are real companies. Additionally, it's perceived as a safer, simpler way to find others with common interests."

"They are the wave of the future," Guptill agreed.

So what are the keys to survival? Again, virtual life imitates physical life in the business world: Deep pockets help. On that front, GEIS has a few advantages. As a division of General Electric Corp., it has not only corporate backing but also a ready-made proving ground for its service in the form of GE's 11 other business units.

"I like to say we're in the GE laboratory stage," said business manager Mark Oakey, who runs the Trading Process Network Mart, one of two GEIS marketplaces. The Mart provides a trading forum for purchasers of office supplies. So far, 10 suppliers participate, and the service is available only to internal GE divisions. Administrators can preapprove purchasers, prevent unauthorized purchases and minimize bureaucracy. Oakey claimed the Mart saves a buyer 10% to 15% by streamlining the buying process.

"We can reduce the leakage and the maverick buying," Oakey said. For instance, the Mart alerts a company when more than one of its buyers is seeking a similar purchase, making it easier to negotiate volume discounts. GEIS makes money in two ways: It charges the buyer for the service, and the seller pays if a transaction is completed.

GE's other marketplace, Post, has begun to move outside the GE fold. During the past 18 months, some six or seven divisions have used it to purchase heavier-duty manufacturing materials and factory supplies. The firm has signed up three outside users: Troy, Mich.-based Textron Automotive Co., Chicago-based Tripp Lite Worldwide and B&M Plastics, Inc. in Mount Vernon, Ind.

The heart of the Post system is GE's massive supplier database, which contains 1,000 suppliers and their products. When buyers generate quote requests, or RFQs, appropriate suppliers are determined in part by complex searches of this database, which

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ILLUSTRATIONS BY NORMAND COUSINEAU

Continued from page 11

has cost millions of dollars and taken at least three years to build.

Buyers pay a onetime consulting fee that includes a business process evaluation and then an ongoing "subscription fee" that varies with usage, according to Orville Bailey, GEIS director of purchasing and supplier productivity solutions. GE is considering implementing a supplier fee. The company hopes to facilitate $1 billion in sales through the service this year via heavy usage by a handful of customers. And it hopes to at least triple the number of suppliers represented this year.

Post's real attraction is reduced cycle time and improved manufacturing processes, Bailey said. For instance, GE's Lighting division slashed delivery times from 14 to 21 days down to seven.

SPECIALTY CRAFT

One of the main lessons learned by electronic marketplace operators, whether their pockets are deep or shallow, is to specialize. At Nets, the feisty Jim Manzi, who recently obsessed over office software as head of Lotus Development Corp., has new, equally mundane fascinations — among them, sandpaper. That's because Nets specializes in matching buyers and sellers of machine parts and manufacturing materials.

But Nets wasn't always so specialized. The original company, called Industry.net until last June, when AT&T came in as a partner, had a broader notion of what it could sell. At one point, it offered a panoply of industrial products and AT&T's Business Network, a subscription-based news service that Nets has since pulled. "The company was unfocused, selling something of too broad a value," Manzi conceded.

In the deep-pocket vein, Manzi has also tapped the coffers of not only AT&T but also PNC Bank Corp. in Pittsburgh, which is a financial transaction processing partner.

Nets charges sellers $500 to $200,000 per year, depending on the richness of service, such as the depth of product listings. Manzi said customers will benefit from drastic cost savings in business processes.

Like Manzi, Internet Shopping Network (ISN) boss Barry Diller has learned a thing or two about trying to be all things to all people. ISN, an early online business-to-consumer shopping mall, dabbled in flowers, steaks, Hammecher Schlemmer merchandise and other items until it cut back to computer products.

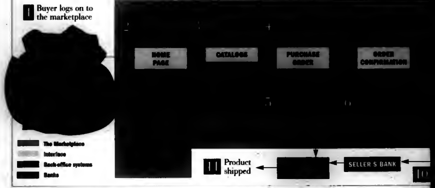
Smart choice, analysts say, because computer products make up the largest-selling category in Internet commerce. San Jose, Calif.-based CyberSource Corp. has grown from $1 million in sales in 1995 to a profitable $6 million last year selling packaged and downloadable software as well as computer hardware through its Software.net marketplace, said chief executive Bill McKiernan. The company predicted it will double its site revenue this year. CyberSource operates like a traditional computer reseller in that it receives a percentage on each sale.

Then again, selling hardware and software online does not guarantee success, said Henry Bertolon, president of NECX, a

Portrait of an Electronic Commerce

EACH ELECTRONIC MARKETPLACE has its own unique functions. Here's a general idea of how one well-known marketplace — Industry.net — works.

to some systems, such as Trade'ex, steps 4-6 are augmented with a bid/ask feature, which allows for private buyer/seller negotiations. Once buyers find the product they want, they can submit an "offer to buy" to every seller of that particular item. Sellers are notified via E-mail. They can review the offers in a "product shopping" window. Their response is logged in the "negotiations" window. Buyers can compare prices and place the order online.



Peabody, Mass., broker of semiconductors and computer equipment. The firm chalked up $1 million in online sales of computers, software and memory kits last year. But that pales in comparison to the $400 million NECX sold in its traditional business.

Bertolon's lament is that NECX has had plenty of traffic but few buyers. That might be palatable had Bertolon not spent $150,000 a month marketing and advertising his site last year. Noting that margins are too thin in his commodity business to justify those expenditures, Bertolon is pruning advertising and spending more money upgrading his technology infrastructure.

ISN Chief Executive Officer Kirk Loevner depicted a comparable scenario at his electronic shopping mall. Loevner claimed that the shopping service would be showing a profit if it were not investing "millions" in upgrading. And while ISN bleeds money, revenue is climbing, from about $5 million in 1995 to $12 million in 1996, said Loevner, who predicted a twofold to threefold revenue increase this year.

Marketplace

In addition, sellers can submit "offers to sell" by posting price and availability information in the product shopping window. Sellers can see all other bids from competing sellers for any given item.

PAYMENT OPTIONS
12
Product received
BANK
BUYER S BANK
Credit approved
Credit checked

Nets also has some pretty heady infrastructure development under way. A key to Nets' system, or just about any electronic marketplace, is the scope and intelligence of a central database. Since the database is what the marketplace uses to match buyers and sellers, users must be able to search it transparently, quickly and nimbly.

This is rocket science, and not just for complexity but for speed as well. As InsWeb President Darrell Ticehurst said, "The consumer doesn't like to wait around for more than five seconds." And in InsWeb's world of delivering data and quotes on insurance policies from scores of policy providers and research groups, it takes heavy-duty programming to deliver premium quotes or other data in five seconds. In a typical session, InsWeb's database sorts through the supplier and research records and matches them against answers to some 180 questions a typical consumer has asked.

In InsWeb's business model, the insurance company pays a monthly fee, pays each time its name is transmitted to the consumer and pays again each time a transaction is completed. The fees run about $10 per transaction, and monthly fees vary by how much material InsWeb disseminates. Buyers do not pay for the service.

Ticehurst estimated InsWeb has poured about $10 million into its site in two years, with about half of that going to programming and a substantial amount to security.

Additional funds are gobbled up by marketing. While others put the brakes on marketing expenditures, Auto-By-Tel is riding in fifth gear. Last January, it purchased a $1.2 million 30-second advertising spot during the Super Bowl broadcast.

The company's Web site provides customers with detailed vendor and third-party information, including how much dealers paid for cars, on almost all new cars in the market. Customers can then fill out a purchase request, which Auto-By-Tel passes on to one of its participating dealers. It charges dealers a sign-up fee plus annual and monthly charges to receive referrals.

Chief Operating Officer Mike Lowell won't quantify the fees. But the appeal, he said, is that the service cuts dealers' marketing costs to $60 per car from what the National Automobile Dealers Association

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COLORIZING BY BETSY HAYES

Are We Making Money Yet?

When you ask World Wide Web marketplace purveyors to open the books, responses range from the blunt to the evasive.

Recently told *Red Herring* magazine that his Internet Shopping Network division is losing $600,000 per month.

BARRY DILLER, chairman of HSN, Inc., the parent of Internet Shopping Network

Pleads confidentiality in not revealing the financial performance of his privately held company and points out that the company's success model is a five- to 10-year proposition.

JIM MANZI, chairman of Nets, Inc., an electronic marketplace for industrial parts

InsWeb has poured about $10 million into its Web site during the past two years. "We don't have anything to brag about yet."

DARRELL TICEHURST, president of InsWeb Corp., a marketplace for insurance products

Continued from page 11

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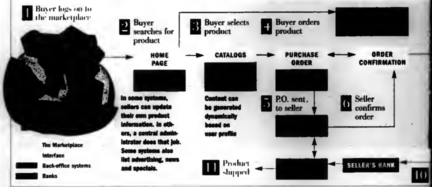

In some systems, sellers can update their own product information. In others, a central administrator does that job. Some systems also list advertising, news and specials.

Content can be generated dynamically based on user profile

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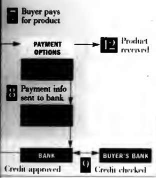

Nets also has some pretty heady infrastructure development under way. A key to Nets' system, or just about any electronic marketplace, is the scope and intelligence of a central database. Since the database is what the marketplace uses to match buyers and sellers, users must be able to search it transparently, quickly and nimbly

This is rocket science, and not just for complexity but for speed as well. As InsWeb President Darrell Ticehurst said, "The consumer doesn't like to wait around for more than five seconds." And in InsWeb's world of delivering data and quotes on insurance policies from scores of policy providers and research groups, it takes heavy-duty programming to deliver premium quotes or other data in five seconds. In a typical session, InsWeb's database sorts through the supplier and research records and matches them against answers to some 180 questions a typical consumer has asked.

In InsWeb's business model, the insurance company pays a monthly fee, pays each time its name is transmitted to the consumer and pays again each time a transaction is completed. The fees run about $10 per transaction, and monthly fees vary by how much material InsWeb disseminates. Buyers do not pay for the service.

Ticehurst estimated InsWeb has poured about $10 million into its site in two years, with about half of that going to programming and a substantial amount to security.

Additional funds are gobbled up by marketing. While others put the brakes on marketing expenditures, Auto-By-Tel is riding in fifth gear. Last January, it purchased a $1.2 million 30-second advertising spot during the Super Bowl broadcast.

The company's Web site provides customers with detailed vendor and third-party information, including how much dealers paid for cars, on almost all new cars in the market. Customers can then fill out a purchase request, which Auto-By-Tel passes on to one of its participating dealers. It charges dealers a sign-up fee plus annual and monthly charges to receive referrals.

Chief Operating Officer Mike Lowell won't quantify the fees. But the appeal, he said, is that the service cuts dealers' marketing costs to $60 per car from what the National Automobile Dealers Association

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COLORIZING BY BETSY HAYES

Are We Making Money Yet?

When you ask World Wide Web marketplace purveyors to open the books, responses range from the blunt to the evasive.

Recently told *Red Herring* magazine that his Internet Shopping Network division is losing $600,000 per month.

BARRY DILLER, chairman of HSN, Inc., the parent of Internet Shopping Network

Pleads confidentiality in not revealing the financial performance of his privately held company and points out that the company's success model is a five- to 10-year proposition.

JIM MANZI, chairman of Nets, Inc., an electronic marketplace for industrial parts

InsWeb has poured about $10 million into its Web site during the past two years. "We don't have anything to brag about yet."

DARRELL TICEHURST, president of InsWeb Corp., a marketplace for insurance products

Continued from page 13

claims is normally $400 per car. The dealer not only sells the car to the consumer with none of the usual showroom dancing but also shares big savings with the buyer.

A number of dealers, however, are reticent about joining Auto-by-Tel's parallel universe. According to Mike Sullivan, owner of Lexus, Isuzu and Volkswagen of Santa Monica in Santa Monica, Calif., consumers don't always follow up with the deal, even after they make a purchase request.

Like any emerging industry, electronic marketplaces will have winners and losers. "The concept will work over the long term," Lepeak said. "Whether these current players will still be in the market, though, is certainly an issue."

Halper is a freelance writer in San Francisco

Visit Emmerce online at www.computerworld.com/emmerce for more on this subject. On May 5, we will post a column and a forum, as well as links to some intermediary sites.

Pick your flavor

Intermediaries fall into many categories. Some replace existing businesses, some are completely new, and others replace internal organizational processes. In all cases, they add new value.

Electronic Clearinghouses

Prices and availability change over time, like at an auction, sometimes in response to customer actions. The clearinghouse directs customers to the selling institution.

EXAMPLES

- Internet Liquidators (www.internetliquidators.com)
- Onsale (www.onsale.com)

Online Support and Service

Hardware and software users can receive support such as automatic updates and upgrades, as well as backup services for critical information files.

EXAMPLES

- CyberMedia (www.cybermedia.com)
- TuneUp.com (www.tuneup.com)

Information Brokers

These sites provide product, pricing and availability information. Some act as a facilitator for transactions, but the main value is information.

EXAMPLES

- CouponNet (www.coupon.com/coupon.html)
- Fastparts (www.fastparts.com)
- Inquity.com (www.inquiry.com)
- PartNet (www.part.net)
- PCOrder (www.pcorder.com)
- PCTravel (www.pctravel.com)
- Travelocity (www.travelocity.com)

Multimedia Content Delivery

Buyers can search for, purchase and receive images, text and sound over the Internet or via CD-ROM.

EXAMPLES

- Build-a-Card (www.buildacard.com)
- CyberCard (www.cybercard.co.uk)
- PhotoDisc (www.photodisc.com)
- PhotoNet (www.photonet.com)
- SonicNet (www.sonicnet.com)

Online Software Delivery

Buyers can buy and receive software and other digital products electronically via the Internet. Software publishers can use these sites like a reseller.

EXAMPLES

- CyberSource (www.software.net)
- LitleNet (www.litle.net)
- Megasoft (www megasoft.com)
- InterNEX (www.internex.com)
- Online Interactive (www.atonce.com)
- Portland Software (www.portsoft.com)

Transaction Brokers

Buyers can view rates and terms, but the main business purpose is to complete the transaction. Purchases are steered to a participating agent.

EXAMPLES

- Auto-by-Tel (www.autobytel.com)
- e.Schwab (www.eschwab.com)
- ETrade (www.etrade.com)
- Online Mortgage Explorer (www.themortgage.com)
- Ticketmaster (www.ticketmaster.com)
- WIT Capital (www.witcap.com)

Marketplace Concentrators

Information about goods and services from multiple providers is concentrated in one central point. Purchasers can search, comparison-shop and sometimes complete the transaction.

EXAMPLES

- DealerNet (www.dealernet.com)
- EarthWeb Direct (direct.gamelan.com)
- Industry.net (www.industry.net)
- Internet Shopping Network (www.isn.com)
- Microsoft CarPoint (www.carpoint.com)

Virtual Trading Communities

In addition to linking buyers and sellers, facilitating purchases and distributing information, these sites also allow for private negotiations, sealed bids and requests for proposals.

EXAMPLES

- GE's Trading Process Network Post (tpn.geis.com)
- NECX (www.necx.com)
- Trade'ex (www.tradeex.com)
- Womex (www.womex.com)
- Unibex (www.unibex.com)

Source: "Opening Digital Markets," Copyright 1997 by Walid Mougayar, CyberManagement, Inc.

commerce

Parametric search systems are complex to set up and expensive to boot. But sometimes they're the difference betweeen success and failure.

BY ELISABETH HORWITT

It's a common Web dilemma. A customer needs, say, Queen Anne chairs, so he goes to his favorite Web search service and enters "Queen AND Anne AND chairs" in the keyword search box. Total number of matches: 663. There are three entries on Queens named Anne, one on Queen Anne cherries, two on dining room furniture, two ads for rocking chairs and an entry on Musical Chairs.

While the average Web surfer puts up with this kind of runaround, product catalog architects can't afford to test visitors' frustration threshold. Increasingly, these commerce sites are offering a more sophisticated, scalable and, yes, more expensive and complex mechanism: parametric searching.

Whether you're selling CDs, toys or semiconductors, your Web site should resemble a real-world shopping trip, only better, said Lauren Freedman, an electronic retailing consultant at the E-tailing Group in Chicago. Parametric searching promises to do just that. It helps customers find an item in a specific price range, style and color faster and more easily than in a store or catalog or on a Web site that relies on keyword searches.

Unlike keyword search engines, which index documents more or less automatically, parametric search engines require that you manually set up a database of product attribute fields. As a result, in the toy business, for instance, customers could shop for toys that provide an educational experience or are geared to a particular age group. Gift sellers or bookstores can let customers look for "everything under $50" or "best-sellers," Freedman said.

IN SEARCH OF: GOOD SEARCHING

ILLUSTRATIONS BY ROBERT ZIMMERMAN

To be sure, parametric searching isn't for everyone. For point-and-click navigation, embedded object links are best. And keyword indexing is best for searching through informational text.

Also, parametric searching is expensive. Figure on $10,000 and up for the engine, plus the human cost of setting up the back-end systems. For instance, Saqqara Systems, Inc.'s parametric search engine, Step Search, costs between $100,000 and $500,000 for a full implementation, depending on the quantity and complexity of the data.

But such expenditures might be necessary if you want customers to sift quickly and accurately through thousands of items.

In fact, sometimes parametric searching can mean the difference between survival and failure. About a year ago, success nearly crippled SmartWine.com, an award-winning wine lover's Web site that provides business news, special events, chat sessions and an extensive database of commercially available wines. Because the site relied on a homegrown keyword search engine, the growing number of hits and an ever-expanding database caused search response time and accuracy to plummet, said Lou Perdue, chairman and chief executive officer at the Sonoma, Calif., wine trade publisher and co-creator of the site. Complaints mounted.

"Keyword searching works fine for a small amount of data, but not when you have about 8,000 HTML documents," Perdue said. So SmartWine.com replaced its search engine with a homegrown parametric search engine. The new engine improved response time and accuracy and became the foundation of a new service called SmartTaste, which helps people find vintages that match their taste and budget. After that service was launched, traffic to the wine-ratings area (where the SmartTaste service resides) increased by 40% to 50%.

Here's how the parametric search engine works: Customers specify their choices by checking off boxes, such as "$9.99 to $14.99" in price, "France, California, Chile" as originating countries and "minimum [score] of 90" as a rating. When the customer clicks on the "search" button, the search engine looks up the product fields that correspond to those parameters, or "at-

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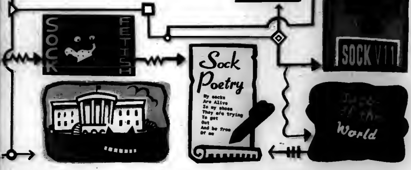


Continued from page 17

tributes," in a cross-indexed database. Once it has all the products that match all the criteria, the system calls up the data sheets for those products, converts them to HTML and downloads them to the customer.

The system also generates HTML pages on the fly, tailoring a document to a customer's information needs. So if a customer finds a wine he has enjoyed, he can push a button and get a list of similar wines.

A bevy of "virtual retailers," from Toys R Us, Inc. to Amazon.com, are similarly using parametric searching and endowing the shopping experience with "creativity and flexibility not available by scrolling or paging" through a catalog, Freedman said.

Some sites offer a mix of both. Hewlett-Packard Co.'s components division offers keyword searching to let customers call up parts by catalog number. But it has also begun implementing Saqqara's Step Search to help newcomers find what they need among some 7,000 HTML pages of data, said David Heron, the division's public relations and electronic communications manager.

To build a parametric search capability, you need three major components: the Web-based parametric search interface itself; the object-oriented database that holds the cross-indexed parametric search fields; and the electronic repository — or, quite often, repositories — for product data.

That last item, while the least bleeding edge of the three, is often the most time-consuming to implement, particularly for the many companies that still have their product data sheets in hard copy form.

Some virtual retailers build their own parametric search databases, either from scratch or using one of the leading object-oriented database platforms. CDNow.com, for example, built a database from scratch that lets customers search for CDs by artist, title, related artists and new titles. Tower Records' Web site bases its homegrown solution on an Informix Corp. database.

But other companies, such as National Semiconductor Corp. and HP, offer Web catalogs with tens of thousands of products, categorized by a bewildering array of configurations, features and model numbers. These companies prefer a more powerful, commercial solution. Their options include a growing throng of increasingly sophisticated products such as Saqqara's Step Search, Cadis Corp.'s Krakatoa and Verity, Inc.'s Search97 (see chart page 20).

In return for their $10,000 or $20,000 outlay, firms don't have to build a Web-based search engine from scratch. They also get tools and the option to hire consultants to aid in-house programmers load product data into an object-oriented database.

Setting up the search database requires Web, database and marketing expertise. You have to predefine the attributes you want users to search for, which means anticipating all the possible shopping criteria Web catalog visitors will want to input. You may also need to convert the product data to a format the search engine can access.

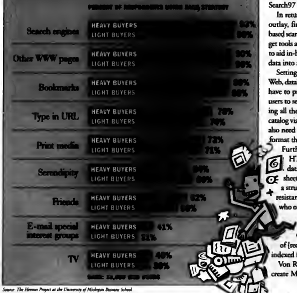
Furthermore, if you want to create HTML pages on the fly, combining data from several different product sheets, you'll have to load the data into a structured database. This may incite resistance from the marketing people, who often view each product page "like a poem," said Claude von Roesgen, Webmaster at Millipore Corp. "They cringe at the thought of [reorganizing it all] as a database" of indexed fields.

Von Roesgen should know. He helped create Millipore's Personalized Dynamic

Please turn to page 20

BROWSING STYLE

This survey asked frequent and infrequent buyers which method they used to find online resources. The heaviest buyers appear to be directed in their browsing behavior rather than hunting in a serendipitous manner. The somewhat greater reliance on friends suggests that word of mouth is especially important in the heavy-buying segment.



Source: The Hermes Project at the University of Michigan Business School
Data is based on a survey by the Georgia Tech Research Corp. (www.cc.gatech.edu/gvu/user_surveys)

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COMPUTERWORLD

The Newsweekly for Information Technology Leaders

Continued from page 18

Catalog, which lets customers who enter a user name and password automatically see pages of new information based on their previous requests.

What's more, the technology lets visitors search through a Web catalog of tens of thousands of scientific, pharmaceutical and microelectronic products, which adds several thousand pages each quarter. Parametric searching "is important when, like us, you have hundreds of products that vary sometimes by only one parameter," von Roesgen said.

But beware: Not all parametric search offerings are created equal.

Millipore, for example, has been using versions of Verity's Search97 platform that are sold with the company's two Web server platforms, Netscape Communications Corp.'s Enterprise Server running on Unix and Notes on Windows NT.

But the solution falls short of Millipore's needs. "We want to provide a single-user interface that will search our entire site," von Roesgen said. So the company recently began evaluating Excite's Excite Web Server, which promises to provide indexing and searching across multiple, multivendor Web servers. (Verity reports it is working on providing this feature.)

Also, not all of the products include "step searching," which lets users key in an initial set of parameters and receive interim results, such as the number of items that meet their criteria so far. They can then continue keying in the next set of parameters. This feature is expecially important for firms whose products have a broad range of possible search criteria.

National Semiconductor Corp., whose Web-based catalog contains data sheets for some 30,000 parts, chose Cadis' Krakatoa partly for its step-searching feature, said Rick Brennan, who managed the firm's Web services prior to moving to Sun Microsystems, Inc. Step-searching "helps customers avoid the frustration of checking a bunch of boxes and then getting back zero matches or 5,000 entries," he said.

A potential sticking point (at least at this stage) is security — specifically, the ability to make certain types of information available to some users but not to others. This information could include price lists, customer-specific records and unannounced product data. Right now, it's up to the corporate information technology managers to come up with selective security for the Web-based catalog.

Millipore solves this by designating some directories "for internal use only," with no hyperlinks to them and developing content areas that are password-protected.

There are additional caveats when it comes in parametric searching, said Stan Lepeak, program director at Meta Group, Inc. For example, when it comes time to support actual Web purchases, you can't take it for granted that current Web catalog technology will link flawlessly and reliably to transactional systems. You need to ask yourself, "How sure are you that your search and retrieval mechanisms are foolproof and idiot-proof, as well as friendly?" Conversely, are existing sales and inventory systems capable of handling what is now a 7 by 24 business? Are they scalable enough to handle the load when droves of customers start ordering the products they've located via parametric searching?

Right now, Millipore uses E-mail ordering in conjunction with its catalog. It plans to offer direct ordering from its Web site within six months. But to do that, said Thomas Anderson, director of corporate communications, "We'll need to connect it to our transactional database."

In the meantime, the Web-based catalog is definitely fostering sales, Anderson said. Visits to the site went from 71,000 in 1995 to 171,000 last year. "Any time we make it easier for people to find information, we're assisting our whole sales effort," he said.

Further, "our main search page is one of the Top 10 documents that site visitors call up," von Roesgen said. "So it's definitely become a positive way to navigate our site."

Horwitt is a freelance writer in Newton, Mass.

PRODUCTS AT A GLANCE

Excite Web Server **Excite, Inc.** **Mountain View, Calif.**	**Parametric search engine that can support leading object-oriented and relational databases.** **PRICE: Free but unsupported product**
Explore and Explore-Catalog **Aspect Development, Inc.** **Mountain View, Calif.**	**Includes client/server-based decision support software, an object-oriented and relational database (Oracle), plus parametric search engine technology. Step searching is supported. Operates across multiple Java and HTML-enabled platforms.** **PRICE: Starts at $40,000**
Krakatoa **Cadis, Inc.** **Boulder, Colo.**	**Includes a parametric search engine and an object-oriented content management database.** **PRICE: $25,000 for single knowledge base.**
Search97 **Verity, Inc.** **Sunnyvale, Calif.**	**Engine is embedded in Netscape Enterprise Server and Catalog Server, Notes and Domino and Open Market's Web commerce server. OEM agreements are in the works for step-search interface. Supports leading databases.** **PRICE: NA**
Step Search **Saqqara Systems, Inc.** **Sunnyvale, Calif.**	**Parametric search engine with step-search interface, integrated with proprietary object-oriented content management database.** **PRICE: $50,000 per CPU.**

Off THE Books

COMPILED BY CARLA CATALANO

WHERE DO **YOU** SHOP?

Daniel M. Eldridge

Vice President, Business Development, DigiCash, Inc.
Amsterdam
www digicash com

"I WENT TO Software.net to buy an upgrade of Eudora electronic-mail software. Ordering was quick and easy because I knew what I wanted. I gave my credit-card number, and the software was downloaded in 30 minutes. It was my first time using the site, so decrypting the software was confusing. I now understand the process and will use Software.net again, although the decrypting process does need improvement."

Frank Blot

Vice President, Business Development, PointCast, Inc.
Cupertino, Calif.
www pointcast com

"I PURCHASED a Pat Methany CD from Musicblvd.com for $15.46. The site is consumer-oriented and graphically appealing. For instance, they offer a frequent-buyer club, supply audio links for each track and offer several payment options, such as writing a check. They confirm your order via electronic mail, which lists the product, type of shipment, cost and confirmation number."

Robert Olson

President
Virtual Vineyards
Palo Alto, Calif.
www virtualvin com

"I KEPT meaning to stop at Tower Books to buy my wife a birthday present but I kept forgetting. I keep my to-do list in the car, and yesterday I realized that I should have ordered her gift a month ago. So I went to Amazon.com and ordered *Gates of November* by Chaim Potok for $20. Amazon is fast and easy. They post the price, availability and date of delivery. It should arrive in a couple of days — and only three weeks overdue!"

Jeffrey P. Bezos

Founder & CEO
Amazon.com
Seattle
www.amazon.com

"EARLY IN THE history of Amazon.com I purchased two small network routers from the Internet Shopping Network (www.isn.com) for about $300 each. That was my first purchase on the Web. I used the Internet because I was having trouble finding these particular routers elsewhere, and ISN had them — and at a good price, too! I had a great experience: They arrived quickly and were delivered straight to my office."

FOR MORE RESPONSES TO "WHERE DO YOU SHOP?" VISIT OUR ONLINE WEB SITE AT WWW.COMPUTERWORLD.COM/EMMERCE

Net**WATCH**

Last year, many analysts predicted 1997 would be the year of Web site closures and disappearing acts. So far, we've seen these sites meet their demise, suffer neglect or undergo a substantial change of vision based on nonprofitability.

AT&T'S BUSINESS NETWORK. Nets, Inc. partnered with AT&T last June and briefly offered AT&T's business-to-business news and information service. Nets has since pulled this service.

THE VERMONT TEDDY BEAR CO. This Shelburne, Vt., company set up a World Wide Web page in the summer of '94. It closed within six months due to poor sales but reopened last fall with a renewed strategy.

MARKETPLACEMCI. MCI's electronic shopping mall, introduced in April 1995, closed its virtual doors a little over a year later. The company is reported to have spent $10 million developing the mall but closed due to poor revenue. According to Vinton Cerf at MCI, the mall failed in part because existing vendors didn't put their full inventories online and insisted on lots of flashy graphics, which were difficult to download.

KEEBLER CO. Unless you are interested in reading about company history or a profile of the fictional "Ernest Keebler," this Web site has little to offer — and certainly not the "features, promotions and information" the home page promises.

1800MUSICNOW. Another former MCI site, this Web store stopped taking music orders at the end of '96.

UTNE READER. This site used to run original content but now depends mainly on chat sessions. It expects to be profitable this year.

PHOTO COLORIZING BY BETSY HAYES, ILLUSTRATIONS BY KATHRYN ADAMS

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Briefs

Internet directory

Lotus Development Corp.'s Soft-Switch division is shipping Soft-Switch Directory Services, a World Wide Web-enabled directory designed to pull data from multiple applications across a network. The software supports the X.500 international directory standard and the Lightweight Directory Access Protocol for pulling information from the directory over IP networks. A key component is the Soft-Switch Directory Publisher, which lets users publish directory information to Web servers. It costs [illegible]

[illegible] Multi- [illegible] for [illegible] mail, [illegible] in the third quarter [illegible] will start at [illegible]

[illegible]

[illegible] board [illegible] electronic-mail [illegible] MailGuard runs on [illegible] but can also [illegible] servers on Novell, Inc. [illegible] Unix and IBM [illegible] connected to a network. Pricing starts at [illegible] E-mail users.

Despite plummeting switch prices and a tidal wave of products, only about 7% of all desktops have switched connections, according to Dell'Oro Group, a Portola Valley, Calif., research and consulting firm.

Schwab's intranet investment pays off

By Laura DiDio

BROKERAGE Charles Schwab & Co. expects its latest technology investment to yield a 1,500% return over three years.

During the past six months, the San Francisco company has poured $125,000 into an intranet that links 600 users in its Electronic Brokerage division to recurring general ledger line items, including salaries, occupancy, communication, advertising and routine profit and loss data, said Mike Sidell, the division's senior manager of business systems.

Before it could access the Finance Now web site, the division each month would print 50 copies of the financial information in a 300-page report. "By using Finance Now to put all [profit and loss] information online, we save $52,000 in annual printing costs and $123,000 in training time because users no longer have to go to training for third-party general ledger applications," Sidell said.

Schwab, page 54

Quality assurance tough for IS

"Service levels mean no luxury to sit around anymore"

By Patrick Dryden

IS GROUPS are having a tough time defining and assuring the quality of service their businesses demand of them.

Many information systems managers said they and the managers on the business side of their organizations now realize that basic business functions and competitive advantages hinge on the performance of complex networks, systems and applications.

And many of those organizations are trying to formalize the unwritten service agreements between IS and end users, in

Quality assurance, page 52

WEB SERVERS

Users mixed on lightweight Domino

By Barb Cole-Gomolski

LOTUS DEVELOPMENT CORP.'S plan to deliver new lightweight servers based on its flagship Domino server is garnering mixed reactions from users.

Some users said the plan will result in wider adoption of Domino technology, but other Notes shops said the stripped-down Domino servers will confuse the market and weaken their case for justifying purchase of full-featured Notes World Wide Web servers.

"They are confusing me a bit just by the sheer number of products," said Jeff Held, a partner in the center for technology enablement at Ernst & Young, a 40,000-seat Notes shop in Vienna, Va.

Lotus earlier this month announced Lotus Go and Lotus Domino Mail.

Lotus Go is a Web server that includes an object request broker and Domino's directory and security features. A developer bundle, Lotus Go Pro, will include Java development tools. The Lotus Domino Mail server will handle electronic mail, newsgroups and Domino-

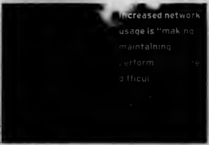
Lightweight Domino, page 52

Babson College's LANs will get virtual

By Bob Wallace
WELLESLEY, MASS.

PATRICK LAUGHRAN didn't have to be a whiz kid to understand the benefits of implementing virtual LAN (VLAN) technology at Babson College.

The technology — which lets network managers create flexible, secure groupings of users based on job function or group membership, rather than physical location on the network — would let the college better meet the computing needs of its extremely mobile students, faculty and staff.



And it would get that benefit without replacing the switched Ethernet gear on its network with high-end routers, which can also create logical LAN groupings but are more difficult to administer and create performance bottlenecks.

Laughran plans to put Cabletron Systems, Inc.'s SecureFast VLAN system to the test in its technology laboratory. If all goes well, it could be deployed beginning in phases this fall.

"VLANs will let us introduce more services across the net-

Babson, page 52

Quality assurance tough for IS

CONTINUED FROM PAGE 51

the same way they demand guarantees from external suppliers.

"IS must be able to report what it does to help the business goal,'" said Ray Paquet, a research director at Gartner Group, Inc. in Stamford, Conn.

But organizational and technical issues stand in the way.

"We don't have the instrumentation in place to begin measuring application response times and performance from an end-user point of view," said Paul Edmunds, a senior network analyst at Duke Power Co. in Charlotte, N.C. Performance-monitoring tools are becoming available and are being standardized. But implementing them requires money, training and time, he said.

And some IS staffers said they fear that setting service-level agreements will mean more work all around.

"Tracking service requires more management tools, which means more traffic on our network and more load on our systems," said Joe Tabaco, a systems analyst at the National Weather Service in Silver Spring, Md. "Administrators will have more to do to keep up, yet we're already at information overload."

Charles Schwab & Co. in San Francisco can't find a tool to reliably measure performance throughout its controlled internal network from a central point, let alone measure performance on applications touching the uncontrolled Internet, said Ron Welf, senior technical lead for network performance and capacity.

Even when performance reports are available, IS and business managers have trouble agreeing on service expectations. "We can show baseline performance reports, but I'm not sure who on the user or management side would understand them," said Gerry Farmer, systems architecture administrator at Blue Cross/Blue Shield of Arizona in Phoenix.

THINKING LIKE END USERS

IS managers need tools that "help them think in end users' terms," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

For example, operators should be able to recognize when service by a warehouse inventory application drops below 95% availability and two-second response. Then they can investigate "techie details" such as packet collisions and server utilization "that have no meaning from a business standpoint," Mason said.

IS managers at investment firm Goldman, Sachs & Co. in New York have voluntarily begun to track their performance because "our business is based on the data we process," said Peter Koski, the firm's vice president of applications and systems management.

IS staffers don't remind users of the technical expertise required to process 80,000 jobs every day on 3,000 servers spread across a global network. Instead, they document troubleshooting efforts and workloads to show improved response to problems and better staff efficiency, Koski said.

A job change drove home the importance of service levels to business goals for Mons Ellingson. He led the network management engineering group at Arizona Public Service Co. in Phoenix, which supported links among 4,500 users. Now he manages sales and consulting at CyberTrails, a division that sells the same statewide network services to schools, small businesses, government agencies and Indian nations.

"Now I must manage bandwidth to make sure customers get what they pay for, because I have competitors," Ellingson said. "On the other side, there was no definition of consequences if IS didn't deliver to internal customers." □

NEW PRODUCTS

MOLEX, INC. has announced a family of A-style Universal Serial Bus connectors with 12M bit/sec. data transfer rates.

According to the Lisle, Ill., company, several styles are available to support plug-and-play integration of up to 127 devices that include PC peripherals and telecommunications equipment. Single, dual-stack and side-by-side receptacles are available.

Pricing starts at 65 cents per piece in quantities of 100,000.

Molex
(630) 527-4470
www.molex.com

D-LINK SYSTEMS, INC. has announced DES-3205/X and DES-3205/F, two expansion modules for the DES-3205 FlexSwitch.

According to the Irvine, Calif., company, both modules provide 100M bit/sec. switched-port expansion capabilities to the FlexSwitch. The DES-3205/X gives users two IEEE standard 100Base-Tx connections. The other module extends fiber-optic network or backbone connections through two IEEE standard 100Base-Fx ports. Pricing starts at $995 per module.

D-Link Systems
(714) 455-1688
www.dlink.com

Lightweight Domino gets mixed reactions

CONTINUED FROM PAGE 51

threaded discussions, and calendaring and scheduling. It also comes with Notes' directory and security, as well as Java programming capabilities.

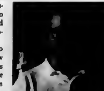
Neither server will be able to run collaborative and workflow applications built on the Lotus Domino server, and both may be set up independent of the Notes client. The plan is to give users a quick entry to Dominn functions and a seamless upgrade path to full-blown Domino, Lotus officials said.

Lotus earlier this year announced several clients — including a Java-based offering for network computers — to bring the total number of Notes clients to eight.

Held said the mail-focused server is a good idea because many companies start down the road to groupware by replacing their E-mail system. But there is less of a draw for Lotus Go because "everybody gives Web servers away," he said.

FEWER FEATURES

"Most companies need all the things that a [full-blown] Domino server provides — they just don't know it," said Keith Cleveland, first vice president of messaging at Countrywide Home Loans, a large Notes shop in Calabasas, Calif. Delivering servers that don't have all the features — or the overhead — of Lotus Domino will appeal to companies that have scoffed at Domino because they thought it was overkill, Cleveland said.



Ernst & Young's Jeff Held

"[Lotus is] confusing me a bit just by the sheer number of products"

But Gilad Ben-Yoseph, a Notes consultant in Chicago, said the strategy detracts from Domino. "By stripping big pieces of functionality out, they are getting rid of the advantage they have," he said. "Unless Lotus Go has a really cool interface into DBa or something, I don't see why anybody would buy it," he said. Domino lacks a built-in interface to IBM's database.

The new servers will let Lotus hit the price requirements of small and midsize companies, but the servers may not provide an edge against servers based on pure Internet standards: Underneath the added Internet functions lies proprietary Notes technology, said Tim Sloane, an analyst at Aberdeen Group, Inc., a research firm in Boston.

Lotus hasn't announced pricing for the new servers, which are expected to be released this summer. □

Babson College's LANs to get virtual

CONTINUED FROM PAGE 51

work for students and faculty without additional administration and without degradation in performance," said Laughran, director of network services at Babson College here. "Those are big benefits for Babson."

The business school's 6,000-connection network is expanding quickly as work progresses on a new building that will add 1,200 connections. Babson wants to stay with its switched network to save the cost and trouble of adding routers.

Network usage has increased since Babson began to let students, professors and alumni join online discussions about courses before and after classes. The college also lets students check grades and other data online, and it plans to offer online registration soon.

Like many colleges, Babson is researching how to put its libraries online to allow students to access books from their PCs. "All this is increasing network traffic and making maintaining performance more difficult," Laughran said.

Demand for Internet access is also straining the network, forcing the school to upgrade its 1.54M bit/sec. T1 access to a fractional 45M bit/sec. T3 pipe.

In addition to network performance, the flexibility of VLAN technology also appeals to faculty members.

"VLAN technology is a great idea because it doesn't take a tremendous amount of effort to set up or change workgroups," said Charles Osborn, assistant professor of information systems at Babson. "Flexibility is the key in classroom teaching. And I'd like to see VLAN technology used to support remote students and faculty so that we can open up the classroom."

The mobility of users is the impetus for many universities to pick up VLAN technology, said Richard Katz, vice president of Cause, an association for managing and using information resources in higher education based in Boulder, Colo. "The bottom line is that students, faculty and staff are in constant motion and want to be able to access the network from any point," he said.

VLANs also carry an added layer of security that prevents users on separate VLANs from communicating with one another unless the IS manager enables it, which can require a firewall. "We're excited about the higher level of security," Laughran said

Laughran has decided to test Cabletron's SecureFast Virtual Networking VLAN scheme, largely because the school already uses the Rochester, N.H., vendor's switches and hubs. □

Benefits of a Sonet ring

- It's self-healing — traffic changes direction on the bidirectional ring if there's a failure or an outage
- Provides recovery data within milliseconds if a cable is cut
- Greatly increases —by gigabits— the capacity of fiber-optic circuits
- Can save money for a companies that use multiple T3s on the network

Users dodge install costs with carrier-based Sonet

By Kim Girard

CLOSER LOOK

AS CARRIERS BOOST their networks with Synchronous Optical Network (Sonet) rings, large corporations are reaping the benefits of the high-speed technology — particularly its self-healing features.

When laid down in a circular configuration, Sonet cables can restore service within milliseconds of a power failure or cut cable. They automatically reroute traffic in the opposite direction.

Sonet's other advantage is that it can handle a high volume of traffic. For example, Sonet operates at speeds between 51.84M bit/sec. (or OC1 link) and 13.22G bit/sec. That makes it ideal for carrying high-speed Asychronous Transfer Mode (ATM) transmissions.

GIVING ATM A BOOST

Steve Sazegari, a principal at Tele.Mac, a California-based consultancy, said Sonet is making headway at large corporations that have campuses wired with fiber-optic cable. "The trend is to use Sonet to implement ATM," he said. "ATM piggybacks on Sonet much easier."

"We're taking advantage of it where we can at this point," said Phil Evans, a telecommunications analyst at Perot Systems, Inc. Evans said the company uses Sonet provided by LDDS WorldCom, Inc. and Southwestern Bell Corp.

MCI Communications Corp., AT&T Corp. and Sprint Corp. all are beefing up long-distance networks with Sonet rings of bidirectional fiber. Sprint is leading the pack; it converted 41 of its 43 fiber rings on its long-distance network to Sonet.

Most of the local access carriers also provide some type of Sonet service.

Broadband access to the corporate network is also moving more toward Sonet, Evans said. "Sonet makes it much easier to interface with telephone companies and ATM local-area networks," he said.

But cost seems to be holding back the technology. Howard Samborn, director of telecommunications at New York Hospital, said he isn't convinced that Sonet is cost-effective. "If you have one [multiplexer] on the Sonet and that room is in a flood or fire, that's a problem," he said. "You'll need two nodes with separate entrances. That adds to the expense."

The hospital is connected to other sites via meshed T1 links, Samborn said. In New York, T1 costs between $500 and $1,000 per month. Using Sonet would cost tens of thousands of dollars, Samborn said.

Users can access Sonet publicly, from the carrier, or they can install a private network at a price. Typically, a company would need Sonet if it already had multiple T3 lines, which run at 45M bit/sec. Sonet requires fiber, a $20,000 multiplexer box to handle traffic transport, access equipment, new servers and hard-drive space. Carriers charge by the mile for Sonet service.

But installation and monthly access prices have come down, Sazegari said. Equipment for an OC3 link costs about $700. OC3 service per link from a local telephone company will cost between $1,000 to $2,000 per month, he said.

Government agencies have traditionally made up the Sonet user base. But financial service companies, industries, utilities, telemedicine and entertainment companies have recently turned to the technology. ☐

Schwab intranet pays dividends

CONTINUED FROM PAGE 51

No one is more enthusiastic about Finance Now than senior analyst Albert Lam. Freed from producing the monthly financial report, Lam and other analysts now have 100 more hours each month to spend with customers. The first big step "to producing all information digitally has already resulted in 180,000 fewer printed pages," said Steve Ariana, the division's vice president of architecture and advanced technology.

And the information is more accessible online. "We were spending tons of money to produce monthly reports that very few people read," Sidell said.

Charles Schwab expects a 600% return on investment in its intranet's first year. That figure rises to 1,000% by 1998 and 1,500% by 1999.

Soon after Finance Now was up and running last fall, a Charles Schwab director found an $80,000 line item that was mistakenly charged to his department. "He notified the correct department and fixed it right away. That would most likely have fallen through the cracks before," Sidell said.

"That's true," said administrative assistant Jana Keeler, who routinely uses the intranet to look up daily billings for her department. "It's so much quicker and simpler to get information off the web rather than paging through the monthly report. Plus, the intranet financials are updated daily; nobody updated the hard copy paper reports, so I never knew if the information was outdated," she said.

Because the Electronic Brokerage division tracks information on all the firm's trades and investments, it needed a secure Internet server.

There is a double layer of protection on the application. Charles Schwab uses high-end Cisco Systems, Inc. routers as firewalls to prevent unauthorized access from external sources. Then a Sun Microsystems, Inc. Solaris server takes over, acting as a proxy server that caches and secures data across the enterprise TCP/IP backbone, Sidell said.

Like everything else, the Finance Now intranet is judged by its return on investment. This year, in its first full year of operation, Charles Schwab expects a return on investment of 600%. That figure will rise to 1,000% in 1998 and 1,500% by 1999. ☐

Earthquake-safe

Charles Schwab's Finance Now intranet is based on Windows NT Server 3.51 and 4.0 running on Compaq Computer Corp. ProLiant 4500 class machines. It runs Microsoft's BackOffice suite, including SNA Server Systems Management Server and SQL Server 6.5. The Windows NT Servers are linked to a 100M bit/sec. Fast Ethernet fiber-optic backbone, which is connected to the IBM and Hitachi Data Systems Corp. mainframes containing the financial trading databases.

But these mainframes aren't at the San Francisco firm's headquarters near the San Andreas fault.

"In the unlikely event that our San Francisco networks go down, we'll still be able to continue trading because our mainframe production networks are located in Phoenix and Denver, so we don't have to worry about an earthquake knocking us out of business," said Mike Sidell, senior manager of business systems at Schwab's Electronic Brokerage division.

The intranet also has a Windows NT Web server outfitted with 16G bytes of hard disk space, 136M bytes of RAM and dual 166-MHz processors to provide end users with detailed, up-to-the-minute access on all daily trading information.

— Laura DiDio

SHORTS

SNA access

Firesign Computer Co. in San Francisco recently released Outbound SNA Server Professional, a software package that enables high-speed, unattended data transfers between Microsoft's SNA Server and IBM's System/390 mainframes running the OS/390, MVS, VM or VSE operating systems.

The software runs as a service on a Windows NT Server. It supports most network protocols, including TCP/IP and IPX. Pricing ranges from $10,000 to $40,000, depending on configuration.

The software is available now.

Wireless LANs

Raytheon Wireless Solutions recently announced wireless LAN products that let users build 2M bit/sec. workgroup networks.

The Andover, Mass., vendor's package includes the Raylink PC card, a PCMCIA wireless LAN adapter and the Raylink Access Point, a wireless LAN-to-Ethernet bridge. The package has a range of 500 feet in a building or up to 1,000 feet when there is clear line-of-sight between devices.

Available immediately, the Raylink PC card and Access Point cost $550 and $1,495, respectively.

Multiplatform security

Millennium Computer Corp. in Pittsford, N.Y., shipped a Windows NT version of its FirstStep Single Sign-On (SSO) Authentication Server. FirstStep SSO lets Windows 3.1, Windows 95, Windows NT Workstation and Macintosh clients connect to servers that run Windows NT, Solaris, HP-UX, AIX and other IBM, Unisys Corp. and Digital Equipment Corp. servers through one secured log-on. Users can also access all network resources, including applications and network gateways. A single user site license costs $120.

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Briefs

WEB WOMEN

Web users with college degrees	64%
Female Web users with college degrees	86%
Web users with incomes of $50,000 or more	53%
Female Web users with incomes of $50,000 or more	61%
Male Web users	78%
Female Web users	22%

Base: 1,052 Web users

Source: International Data Corp., Framingham, Mass.

Multivendor savings

Intranets based on many vendors' products deliver a bigger payoff than intranets based on a single vendor, according to a recent report by Forrester Research, Inc. in Cambridge, Mass. The report found that a 10,000-person company can save more than $6 million by using products from Microsoft Corp. and Netscape Communications Corp., instead of only Microsoft products. But integrating products from many vendors can be a complex task, the report said.

E-mail upgrade

Santa Barbara, Calif.-based Software.com, Inc. this month will ship Post.Office 3.0, an upgrade of its Internet messaging server that offers improved performance and increased scalability over previous versions. Available for Windows NT, Post.Office 3.0 costs $495 for 100 users.

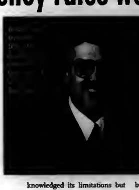
E-mail addiction

"At this point, there is no technology that is more strategic for us than electronic mail. When the electricity goes off, people first notice that they can't send E-mail, not that the lights are off," said Leslie Maltz, director of computing communications and resources at the Stevens Institute of Technology in Hoboken, N.J.

• CGI still dominates Web servers

Inefficiency rules Web apps

By Justin Hibbard



MOST developers who write applications to run on World Wide Web servers use the least efficient programming interface available.

That was the conclusion of a report late last year by Gartner Group, Inc. in Stamford, Conn. It found that applications based on the Common Gateway Interface (CGI) tie up computing resources and scale poorly but nevertheless make up 90% of all Web server-based applications.

"[CGI] is still extremely popular," said Daryl Plummer, a Gartner analyst and author of the report. "It's not declining as fast as I had thought it would, but it is declining."

Developers who use CGI acknowledged its limitations but said they continue to use it because it is portable across all Web servers. Software based on the application programming interface (API) of a particular Web server runs faster but works only with that server.

Vendor-specific applications defeat the purpose of using open Internet protocols, according to John Swartzendruber, a senior information consultant at Eli Lilly & Co. in Indianapolis.

"The danger is, as soon as you start writing to specific features — client or server — you run the risk of losing [the Web's] flexibility," Swartzendruber said.

Eli Lilly uses Netscape's Web servers, but so far the pharmaceuticals company has based almost all of its intranet applications on CGI rather than on Netscape's API.

"If you take advantage of a feature for performance, that may be a valid reason, but you

CGI, page 62

JAVA APPLICATIONS

Fed requests for grants going online

By Sharon Machlis

THE U.S. Department of Transportation (DOT) has turned to Java for developing a World Wide Web-based program that lets organizations file federal grant applications electronically.

For now, prospective grant applicants are invited to log in and try the site but not submit real data until security features are implemented and checked. The program is expected to go live in September at www.dot.gov/general/commerce.

DOT officials believe the program, part of the Clinton administration's "reinventing government" initiative, will save time for local governments, uni-

Fed requests, page 62

Bank of America's Web site has a corporate feel to it – more like a bank than a Web site

Banks cash in on Web

WEB REVIEW▶ *Online banking sites*

By Frank Hayes

WEB BANKING is an idea whose time has come — to San Francisco and Seattle, mostly.

Only four of the top 50 U.S. banks let customers use the World Wide Web to access checking and savings accounts, check balances and transfer funds. Three of those banks are West Coast heavy hitters Wells Fargo Bank, Bank of America and U.S. Bank.

Two other big banks offer similar services in the South: First Union Corp. and Atlanta Internet Bank.

Dozens of smaller banks and credit unions have made the jump to the Web, but banking powerhouses such as Citibank in the Northeast and First Chi-

Banks, page 60

OPINION

No 'net? No problem

CRAIG STEDMAN

I JUST SPENT two weeks cut off from my external E-mail, with no reliable way to access the Internet. But all good things must come to an end.

No, I wasn't blissfully sunning myself on a tropical island. The stupid hard drive in my docking station decided, in a fit of pique, to stop working.

(OK, OK. So maybe the fit of pique was mine. I don't think there's any need to go into the gory details here. Suffice it to say that the *Computerworld* help desk now refer to me as "Crusher.")

We're not exactly swimming with replacement portables around here, so I had to make do with a leftover 386-based desktop.

I couldn't access my Lotus Notes account at all, and surfing the Internet was painfully slow even with the images turned off. Constant General Protection Faults in Netscape persuaded me to mostly give up on the 'net.

My first thought about life without my own Windows 95 box was: "Now I can't play the Space Cadet Table pinball game anymore!"

After I calmed down, I thought: "Hmmmm. I wonder if this will affect my ability to do my job?"

The short answer: Not really.

Here are some insights from 10 days of being off-line:

- **My work life got less cluttered.** Magically, I freed myself from an entire stream of messages — nearly 200 in all, as I discovered

No 'net, page 62

.WORK THE WEB™

HOW THE BANKS STACK UP

	Atlanta Internet Bank	Bank of America	First Union	U.S. Bank	Wells Fargo
	www.atlantabank.com	www.bankamerica.com	www.firstunion.com	www.usbank.com	www.wellsfargo.com
APPLY ONLINE	No	Yes	No	No	Yes
ONLINE DEMONSTRATION	Yes	Yes	Yes	No	Yes
PAY BILLS	Yes	Yes	Being launched	No	Yes
MONTHLY CHARGE	$4.50	$8.50	Free; $9.95 for bill payment	Free	Free; $5 for bill payment
EASE OF USE	Good	Good	Fair	Fair	Excellent
SPEED	Good	Good	Poor	Poor	Good
OVERALL GRADE	B	A-	B-	C+	A-

WEB REVIEW▸ *Online banking sites*

Banks cash in on Web

CONTINUED FROM PAGE 57

cago in the Midwest are still dragging their feet, offering nothing but informational Web sites.

Of course, no one chooses a bank based on the availability of Web banking.

Not yet, anyway.

WELLS FARGO

The 800-pound gorillas of San Francisco banking, Bank of America and Wells Fargo, compete for everything. In Web banking, Wells Fargo edges out Bank of America with a site that is just a little better designed.

Wells Fargo's site works with a wide variety of browsers, and each page fits easily in a narrow window — it doesn't have to take up your whole screen. The clean, simple pages load quickly, and you log on using your Social Security number and a password, so you don't need to remember your account number.

Naturally, you can check balances, transfer money between accounts and examine credit-card charges and payments. You can also download that information for use with Intuit, Inc.'s Quicken, Microsoft Corp.'s Money or spreadsheet programs.

The Wells Fargo site also includes links to weekly economic reports, business services and even wanted posters of real people accused of check fraud. It uses an Old West motif that gets a little heavy-handed at times, but it offers most banking services you routinely need, with snappy performance that even manages to be entertaining.

BANK OF AMERICA

Compared with Wells Fargo, Bank of America's Web site is more button-down and high-toned. Maybe it's just a difference in corporate style, but it feels less like a Web site than like ... well ... a *bank*.

Bank of America's Web pages are wider than a standard low-end 640-pixel-wide PC screen, and they require a Netscape Communications Corp. browser. Customers log on using the last nine digits of an ATM card number and a password.

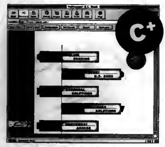
Bank of America's Web-banking services match Wells Fargo's point for point, even down to support for Quicken and Microsoft Money. Business customers can use the system to manage their business accounts, and each customer can build a "profile" to avoid the need to repeatedly type in information.

There are also links to other banking services and information — but no wanted posters. Competing against anyone else, Bank of America's slightly stiff site would be the best in the country. Against Wells Fargo, it's a close second.

U.S. BANK

This site is nowhere near as good as its bigger competitors. But U.S. Bank's Web-banking service is free — and the bank is about to expand from the West Coast to cover a lot more of the U.S.

The site itself is mediocre at best. U.S. Bank's Web pages are literally unreadable with older browsers and require a wide window and at least 256 colors just to view the site. And the services available are limited to viewing balances and transferring money.



U.S. Bank's site doesn't work well with some browsers, and its services are limited

Customers can choose their own user identifications, though. And Web banking here is free — unlike other banks, which charge between $4.50 and $10.95 per month for various services.

Mediocre or not, an imminent merger between Portland, Ore.-based U.S. Bancorp and First Bank System, Inc. in Minneapolis will soon give U.S. Bank the broadest geographic reach of any bank offering Web services — from Illinois to the Pacific. That may help push other big banks into the Web-banking game.

FIRST UNION

Charlotte, N.C.-based First Union's Web site is less than friendly — just a little too wide for a 640-pixel screen and noticeably slower than several other banks' offerings. Customers log on with a customer access number, four-digit personal ID number and password.

First Union is trying to improve. Customers can currently check information on accounts, loans and credit cards, transfer funds and apply for accounts online. But the bank is cranking up a new online bill-payment system and adding support for home-finance software.

In short, it's a serviceable, but not spectacular, Web bank.

ATLANTA INTERNET BANK

Atlanta Internet Bank's name says a lot about what it's trying to do. This ought to be a pure Internet bank — though it's actually a division of Carolina First Bank in Greenville, S.C.

The Web site is bright, busy and attractive, and the pages fit in a narrow window. You log in with a user ID and password and can see balances, transfer funds and pay bills. You can even review older transactions by check number or a range of dates, which makes it much easier to find just the information you want.

But you have to use mail or telephone to apply for an account. And some of the site's "services" just point you to a phone number. Still, as a first pass at Web banking from a medium-size bank, it's attractive and usable. And by positioning it as an "Internet bank," Carolina First may have figured out how to play a much bigger role in the future. ☐

NEW PRODUCTS

POWERSOLUTIONS FOR BUSINESS has announced www.SitePromoter 2.0, software to help promote World Wide Web sites on search engines and other directories.

According to the St. Louis company, the software provides a tool to help Web designers register their sites with 150 search engine sites.

The price is $129.

PowerSolutions for Business
(800) 955-3337
www.sitepromoter.com

FAXSAV, INC. has announced FaxExpress, which adds fax capability to World Wide Web sites.

According to the Edison, N.J., company, FaxExpress can send Web inquiries to a remote fax machine and receive customer orders, inquiries or messages from a Web site at a fax machine. The price is 15 cents per page.

FaxSav
(908) 906-2000
www.faxsav.com

VITALSIGNS SOFTWARE, INC. has announced Net.Medic, browser companion software to monitor, diagnose and correct Internet performance problems.

According to the Santa Clara, Calif., company, the software lets users find the source of slow response times when contacting World Wide Web sites — whether the cause is the user's PC or modem, an Internet service provider, the Internet backbone or the remote Web server. NetMedic then recommends solutions or automatically fixes the problem if possible.

The price is $49.95

Vitalsigns Software
(408) 980-8844
www.vitalsigns.com

SHORTS

Free catalog software

Htmlscript Corp. in San Diego has launched KoolCat electronic catalog software for the World Wide Web. The software was written entirely in Htmlscript's fourth-generation language. Source-code and unlimited-distribution licenses start at $995. It is free for internal use by companies with revenue less than $1 million.

Secure E-mail

PostX Corp. in Cupertino, Calif., last week announced PostX Envelope, a Java-based add-on designed to beef up the security and reliability of electronic-mail systems. PostX Envelope lets users send multimedia E-mail messages across mixed mail platforms without scrambling attachments. It also adds security and return receipts to mail systems based on the Simple Mail Transfer Protocol.

Cryptic Exchange

Entrust Technologies in Nepean, Ontario, has released a security package for Microsoft Corp.'s Exchange E-mail server that lets users encrypt and digitally sign E-mail. The Entrust/Express for Microsoft Exchange plug-in works with Outlook and Entrust's public-key infrastructure. It costs $49 per user.

IBM 'net suite

IBM in Somers, N.Y., last week announced ENetwork Software, a family of products to help integrate electronic business applications and the Internet. ENetwork Communications Suite combines communications products such as Lotus Notes Mail client with Nescape Communications Corp.'s Navigator. Other software will provide mobile networking and Internet access. The suite will ship in May and cost $449.

Internet policy template

Many tools can monitor and control employee access to the Internet and Web, but few organizations have rules that they can enforce. On Technology Corp. in Cambridge, Mass., offers a sample policy for corporate Internet usage that anyone can download and adapt. Initially created to help On customers, the Internet Usage and Security Policy is free at www.on.com.

No 'net? No problem

CONTINUED FROM PAGE 57

when my portable finally came back. Not having to deal with 20 E-mail messages per day was liberating.

I'm not alone in that feeling. A new study, commissioned by Pitney Bowes, Inc. — which makes machines that stamp postage on paper mail, as well as other office equipment — and done by the Institute for the Future and others, found that 71% of workers at big companies feel overwhelmed by their daily dose of messages and documents.

■ My dread of missing something important was unfounded, at least in this case. A bit of a caveat: In addition to Notes, we have an internal messaging system built in to our word processing software. I was able to use that one and frankly would be hard-pressed to get by without it.

But the glut of messages waiting in Notes was mostly white-noise stuff: minor announcements, meeting requests, an invite to a vendor's party. The biggest fallout is there are probably people who think I'm a jerk for not responding. (Nothing could be farther from the truth. I'm a jerk for slugging my PC.)

Not being able to zip around the Internet did make it hard to track what my competitors were up to on a daily basis, and it closed off a good information resource. But then, there's always the phone.

Now don't get me wrong. I'm no Luddite, and I wouldn't really want to endure for long without all of the technological tools that link me to the outside world. But I found during my hiatus off-line that they are only tools, and if one tool breaks, you can usually find another one to finish the job.

Now excuse me while I hug my PC. It's back. We're bonding again. □

Did my loss of Internet mail affect my ability to do my job? The short answer: not really. Not having to deal with 20 E-mail messages per day was liberating.

Stedman is Computerworld*'s senior editor, databases. His Internet address is craig_stedman@cw.com.*

CGI inefficient but popular

CONTINUED FROM PAGE 57

tie yourself into a specific vendor," Swartzendruber said. "We are saying, 'Avoid that if at all possible.'"

Developers at DHL Systems, Inc. in Redwood City, Calif., write interfaces based on Netscape's API to boost performance.

"We would write CGI scripts, but it's just that the speed of executing them each time you get a request is too much of a price to pay," said Eric Choate, software systems engineer at DHL.

Because CGI applications aren't multithreaded, a new process begins every time a user requests a CGI transaction. An accumulation of processes can tax a server's CPU until performance slows to a crawl. Most APIs let developers write applications that can run several requests at once without spawning a process for each.

Slow performance could have disastrous effects on a company such as Allmerica Financial in Worcester, Mass. Allmerica sells financial products over an extranet. A slow application could make a customer think that a transaction failed, and submitting the transaction again could result in two purchases.

Nevertheless, Allmerica has based its extranet applications on CGI, because much of the code is available on the Internet and the company doesn't want its applications to run on only one vendor's Web server, said John Petersen, electronic commerce developer at Allmerica.

Moreover, Petersen is confident that because Allmerica uses transaction monitoring software designed to spread the processing load of CGI applications across servers, serious performance errors won't occur.

The software, Patrol from BMC Software, Inc. in Houston, monitors the availability of servers and redirects CGI processes to servers that can handle the load.

Other products that offer similar features are Oracle Corp.'s Web Application Server and Microsoft Corp.'s Transaction Server. □

Computerworld *senior editor Kim S. Nash contributed to this story.*

COMPUTERWORLD

For these and other related links, point your browser at www.computerworld.com/links/970421cgilinks.html

- **The Common Gateway Interface hoohoo.ncsa.uiuc.edu/cgi/**
- **The CGI resource index www.cgi-resources.com/**
- **Online CGI programming class www.99.netrent.com/dev/class/**

Fed requests for grants

CONTINUED FROM PAGE 57

versities and other agencies that seek federal funds — both in filling out forms and receiving a final OK.

For example, DOT hopes to cut approval time from 90 to 30 days for local transit authorities that request federal money to buy a new bus, according to Bradley Smith, manager of the DOT's Electric Grants Pilot Project. Filling out electronic forms means data could move more quickly in the agency. Massive paper applications would no longer need to be keyed in to the agency's own computer system, he said.

DOT officials are working with other federal agencies with the aim of streamlining grant requests throughout the government.

"Every [federal agency] wanted different forms," Smith recalled from time spent seeking federal funds for a Pennsylvania agency. "It drove us crazy."

The site's developers were pleased with Java-based tools from Active Software in Santa Clara, Calif. "I think the object orientation of Java really helped speed development," said Kevin Bocek at Advanced Management Technology, Inc. in Washington, which did programming for the DOT project.

Blocks of code were more easily reused than in other programming environments, Bocek said. However, some users have run into compatibility problems because not all browsers support the full range of Java features.

TEMPORARY PROBLEMS

Apple Computer, Inc. Macintosh and Microsoft Corp. Internet Explorer users can't access the site properly, nor can Windows 3.x users, because those systems don't properly implement Java "tabs," said Smith, who added that he expects the problem to be fixed. The tabs, part of standard Java, allow for convenient display of a lot of data without having to scroll up and down a screen.

In addition, memory requirements to run the 400K-byte applet appear to be steep. For some PCs, 16M bytes are inadequate because of overhead from the application's graphical user interface, the browser and the Windows operating system. Smith expects the new Java operating system due out later this year to wipe out much of that overhead and allow a PC with 8M bytes of RAM to connect properly. Bocek said a new application programming interface from Active Software will also cut down on the overhead.

The program was launched with a $155,000 grant last year from the National Performance Review's Government Information Technology Services board Innovation fund. A second grant of $350,000 from the Federal Public Key Infrastructure Steering Committee will fund security work for the site. □

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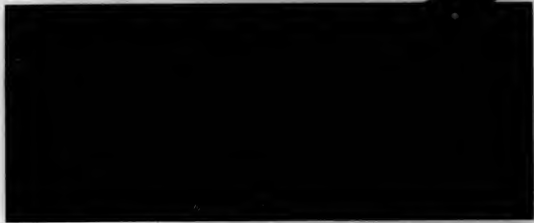

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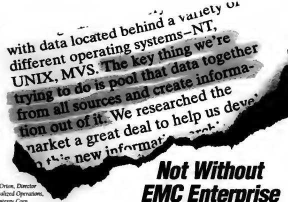


Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

Sybase wins Ernst

Ernst & Young Technologies, Inc., a wholly owned subsidiary of Ernst & Young International, has licensed Sybase SQL Anywhere Professional — a multiplatform database management system — to support 22,000 mobile auditors who typically work at customer sites for up to weeks at a time. The parties declined to disclose the amount of the contract.

Perot Systems in pact

Perot Systems Corp. and The ISO Alliance have been awarded a $48 million contract to jointly develop and implement new business systems to help the state of California administer bidding, scheduling and other functions of the state's deregulated electricity industry by January 1998.

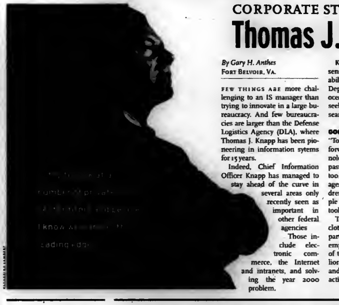
Buying market data

More than one-third of Fortune 500 companies have given their information systems departments some control over purchases of information services such as market research reports, according to a new study by Cowles/Simba Information in Stamford, Conn. Driving the change is a shift toward buying Internet- and intranet-based services rather than print and CD-ROM collections. The latter traditionally have been controlled by individual departments and corporate libraries. Sales of information via the Internet and intranets will grow to $5.4 billion by 2000, according to the study.

CONSULTING STATS

- Partners in consulting firms charge an average of $270 per hour for services
- The average consulting partner billed out $310,000 in revenue last year
- Consulting fees jumped 8.3% last year and should grow another 7.8% this year

Source: Kennedy Research Group, Fitzwilliam, N.H.



CORPORATE STRATEGIST:

Thomas J. Knapp

By Gary H. Anthes
FORT BELVOIR, VA.

FEW THINGS ARE more challenging to an IS manager than trying to innovate in a large bureaucracy. And few bureaucracies are larger than the Defense Logistics Agency (DLA), where Thomas J. Knapp has been pioneering in information sytems for 15 years.

Indeed, Chief Information Officer Knapp has managed to stay ahead of the curve in several areas only recently seen as important in other federal agencies. Those include electronic commerce, the Internet and intranets, and solving the year 2000 problem.

Knapp, 55, has combined the sensitivity of a diplomat with an ability to navigate the Defense Department's organizational ocean and the willingness to seek varied opinions in the search for answers.

GOOD TOOLS

"Tom has brought [the agency] forward in the information technology arena quite a way in the past 10 years," said Karl Ralstoo, executive director of the agency's Defense Automatic Addressing Systems Center. "People at DLA have very good IT tools."

The DLA supplies food, fuel, clothing, medicines and spare parts to U.S. military forces. It employs 50,700 people, 3,000 of them in IS. It sells $11.5 billion worth of supplies each year and processes 30 million transactions. And it maintains al-

Thomas J. Knapp, page 66

Bank deals face IT hurdles

By Thomas Hoffman

BANKS ARE LOOKING to buy brokerage houses as a way to gain revenue from retail investors. But such acquisitions bring important technology and management challenges that could foil some prospective deals.

Bank industry analysts expect to see a flurry of acquisitions after now-lofty stock prices for investment banks return to earth. Leading the way so far are recently announced deals such as New York-based Morgan Stanley & Co.'s pending $10.2 billion purchase of Dean Witter, Discover & Co. and Bankers Trust New York Corp.'s $1.7 billion takeover of Baltimore-based Alex. Brown & Sons, Inc.

Observers warn that the new business opportunities those

IT issues, page 67

Companies struggle with new roles of IS pros

By Julia King

CONSIDER THE CASE of the investment banking firm that hired a talented IS professional who subsequently became an expert in the firm's equity system.

When the staffer wanted to move to another opportunity within the firm, he was blocked. The reason: His company couldn't afford to lose its equity systems expert.

Instead, the expert was offered an additional $20,000 in pay, which he turned down before moving to another company.

The lesson here is that information systems professionals have come a long way from the stereotypical image of techno-nerds. Increasingly, their skills and expertise reach beyond

New roles, page 66

IS professionals are changing

From:	To:
• Taskmasters	• Consultants
• Individual contributors	• Team contributors
• Technical experts	• Leadership, business and client management experts

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Data warehouse gives Delaware police new weapon to fight crime

By Jaikumar Vijayan

NEWCASTLE COUNTY, Del. Police discover two male bodies, lying by a roadside.

The two men apparently were murdered somewhere else, and forms of identification were removed from their bodies before they were abandoned here.

A search in the state's missing persons list yields eight possible matches for the victims. Homicide investigators compare details such as fingerprints, height and weight of the victims to those in the list.

Nothing.

Investigators quickly surmise that the two men could be from out of state and pass on their descriptions to police departments around the country. Within hours the victims are identified as two men missing from neighboring Maryland.

Ordinarily, it would have taken the police anywhere from a few days to nearly two weeks to positively identify the bodies, said Det. Robert Moses at the Delaware State Police criminal intelligence unit in Dover. Instead, this part of the investiga-

Data warehouse, page 67

Thomas J. Knapp

CONTINUED FROM PAGE 65

most $1 trillion in contracts with 24,400 contractors.

Underpinning those activities is a vast IS infrastructure that includes three huge data centers, 500 LANs, a PC for every worker and an annual budget of a half-billion dollars.

Some observers said Knapp'a greatest accomplishment as CIO was consolidating and streamlining the agency'a far-flung systems development activities.

Before 1995, the DLA had five autonomous development units with about 1,250 people. Redundant activities and lack of standards and interoperability boosted costs to unacceptable levels. That's a common situation in the change-resistant Defense Department, where military commanders jealously guard their turfs.

KNAPP'S KNACKS

Through skillful diplomacy, Knapp persuaded his agency's leadership to order a systems consolidation, and then he sold the idea to five initially hesitant group commanders.

Knapp "works very hard at getting consensus, which is the way you have to do things in an organization this large," said Navy Capt. Peter Anderson, commander of a systems design center in Columbus, Ohio. "He reads body language. He tries to understand the players and where they are coming from."

The soft-spoken and self-effacing Knapp also deflects praise to his colleagues rather than taking credit by himself.

Take the year 2000 problem. The Defense Department has come under sharp criticism for doing too little, too late to meet the date-change challenge. Knapp's agency, meanwhile, started its year 2000 work early — in 1991 — and is due to begin final testing on 60 million lines of code by the end of next year. "We've had some very forward-thinking people on this," Knapp said.

As for electronic commerce and electronic data interchange (EDI), the agency practically invented the concept, at least as far as Uncle Sam is concerned. The DLA established its own version of ANSI X12 — today'a standard for EDI — to exchange procurement data with Eastman Kodak Co. 13 years ago, eight years before the official atandard existed.

Now Knapp's agency transacts about 65% of the government's EDI and 80% for the Defense Department.

Knapp was born in Windber, Pa., in 1941. He graduated from Lebanon Valley College in Annville, Pa., and began government service in 1964 as a program analyst in the Naval Supply Systema Command.

LISTEN UP

He said he gets his ideas by being a good listener — to a lot of sources. "I try to look at a number of private sector firms and people I know who are on the leading edge," he said. For example, he recently met with officials from The Boeing Co. in Seattle to learn lessons from Boeing'a use of computers to design the 777 aircraft.

Despite his successes, Knapp said DLA's huge base of legacy systems makes innovation difficult. Particularly troublesome is a top-down requirement to implement standard applications dictated by the Pentagon's Corporate Information Management program. "The demands for change far exceed what the legacy baseline allows," he said.

Knapp said he believes strongly in bringing users early and often into systems projects. "The cultural implications are grossly underestimated in big government programs," he said. "The real problem is not technology, it'a change and change management. You can't change a system in a massive way without realizing that you are affecting people's lives." □

Firms at Comdex U.K. warned on year 2000

By Kristi Essick
LONDON

WHILE COMPANIES worldwide have been criticized by analysts and industry groups for ignoring the year 2000 problem, many users here recently reported that their corporations are well on the way to fixing the so-called millennium bug.

Peter de Jager, a self-appointed evangelist on the date-change problem, last week scolded attendees at Comdex U.K., saying their companies don't know how big the task is to fix.

Organizations around the world are working to fix the problem in varied systems, from mainframes to desktop software, that can't recognize four-digit data fields for the year.

Experts warn of potential breakdowns in systems that can't handle dates past Dec. 31, 1999. Some estimates put the cost of fixing the bug into the hundreds of billions of dollars.

De Jager said the software industry has a "dismal record" of releasing products on time — and that means the computer industry won't be able to address the year 2000 problem before the end of 1999. Thus, one out of every 100 companies worldwide will be forced to close.

PROGRESS MADE

But despite estimates from the U.K. Department of Trade and Industry that only 10% of U.K. companies have undertaken a system audit as a first step in fixing the potential bug, many users responsible for deploying a 2000 program in their organizations seemed aware of the risks and were set to tackle the problem head-on.

"It'll be a painful process and the problem is bigger than we expected," said Iain Paton, an information technology manager at London-based finance firm Prolific Unit Trust Managers Ltd. But the 200-person company already has three full-time staffers working to bring systems into compliance with the next millennium.

Paul Harbourne, a year 2000 program manager at British Telecommunications PLC, is heading one of Britain's most complex millennium upgrades.

BT haa earmarked more than 200 million pounds ($326 million U.S.) to fixing the problem and will employ up to 1,000 programmera to fix more than 300 million lines of code. The company created a team of 30 people a year ago dedicated to the task of assessing which systems need fixing and which can be bypassed safely, Harbourne said.

Making such decisions is crucial to getting the problem fixed in time, de Jager said. IS managers must determine which applications are crucial to the core business structure of the company and leave the others to die out, he said. □

Essick writes for the IDG News Service in London.

New roles for IS pros

CONTINUED FROM PAGE 65

technology and into areas such as statistical analysis, marketing and project management.

But IS career paths at most companies have failed to keep pace with these changes, and new paths are clearly needed, organizational experts say.

"We recommend multiple career ladders, which a lot of companies shy away from because they think it's too much administrative work," said Linda Pittenger, vice president of IS consulting at The Hay Group, a Philadelphia-based human resources and compensation consulting company.

Senior IS executives believe that up to 50% of their current staff don't posess and likely never will posess the qualities of the new-breed IS professional, according to The Hay Group.

Rather than stick to the hierarchical ladder with rungs for programmers, system analysts and so on, she and other experts recommend separate career paths for individual technical experts, project managers, business consultants and managers. Many of those employees will actually end up working outside of IS.

The reasons are fairly simple. Highly talented technical experts don't necessarily make the best managers. Also, as technology infiltrates virtually every part of the business, IS professionals are more likely to want to work in those business organizations.

Yet at many companies, becoming an IS manager or a subject-matter expert in a particular technology is the only way IS professionals can rise through the ranks, Pittenger said.

In addition to career mobility, workers also need a very clear-cut idea of the traits and behaviors they need to advance along new career paths, she said.

"That way, people don't have to guess what it means when a manager tells them they need to be more flexible or customer-focused," Pittenger said. By giving workers concrete examples of customer-focused behavior — such as including users at brainstorming sessions or project update meetings, for example — companies are actually giving employees the tools they need to manage their own careers, she said.

Providing this kind of straightforward career path information is especially critical with new IS recruits, said Randy Pennington, a principal at Pennington Performance Group, a training consultancy in Dallas.

"The atudents coming out now are very practical and very pragmatic," Pennington said. Given the right information, they fully expect to manage their own careers. Without it, they're likely to quickly move on to another company, which they perceive as offering more opportunities, he explained. □

Give 'em training, too

American Management Systems Corp. (AMS) in Fairfax, Va., goes a step beyond providing employees with information about its varioua career paths. The systems integration firm also furnishes extensive training in skills that employees need to advance.

For example, AMS last year hired about 1,000 new college graduates, many of whom held degrees in graphic arts and the physical sciences. That gave the firm both the design and analytical talent it needs to develop new consumer-oriented systems.

AMS then trained the recruits in the technical skills necessary to build the systems.

"Since you have to retrain people continuously to take advantage of new technologies, training truly isn't as big of a burden as it looks," said Shahla Butler, vice president and executive director of AMS' Center for Advanced Technologies.

"Ten years ago, it was just Cobol. Five years ago, everybody was going to C++," Butler said. "Now, everyone is moving to Java, so even if you have the best C++ programmer, you now have to make them a Java programmer, anyway." — Julia King

IT issues may foul bank deals

CONTINUED FROM PAGE 65

deals generate for banks will likely come at a hefty price: big systems consolidation headaches.

For example, Morgan Stanley's mainframe infrastructure is well-suited to support its 35,000 to 45,000 daily institutional trades. But the systems would be hard-pressed to handle New York-based Dean Witter's daily retail trades, said Larry Tabb, a technology analyst at The Tower Group, a Newton, Mass.-based financial services and technology consultancy. Dean Witter's trades can be triple the volumes that Morgan Stanley usually handles.

Retail brokerages are attractive acquisition targets because the trades they make typically generate fatter profit margins than institutional products, said Larry Tabb, an analyst at The Tower Group.

Retail and institutional trading systems "are much different from each other" Tabb said. For the short term, Morgan Stanley probably will have to support both companies' mainframe environments, "but they won't want to support multiple mainframe environments forever" because of cost-prohibitive maintenance and licensing fees, he said.

UPGRADE NEEDED

To resolve its processing conundrum, Morgan Stanley probably will have to upgrade the processors that support its institutional trading system, called Trade Accounting and Processing System, and add a retail module to handle the extra volumes, Tabb said.

IS executives at Morgan Stanley and Bankers Trust couldn't be reached for comment, but industry-watchers agreed that future banking/brokerage teams will have their share of technological hurdles to vault.

Analysts said the Bankers Trust/Alex. Brown deal is an exception to the commercial bank-buys-investment bank trend. Bankers Trust, in New York, has already moved from being a commercial bank to a capital markets firm, said Raphael Soifer, an analyst at Brown Brothers Harriman, a New York-based investment bank.

As such, there's more overlap between the two companies' trading systems. That scenario may lead Bankers Trust to "cherry pick" between best-of-breed systems at both firms for things such as core trading and asset management systems.

SIMILAR APPROACH

That approach is similar to the one followed by Chemical Banking Corp. in its merger with Chase Manhattan Corp., said Octavio Marenzi, research director at Meridien Research, Inc., a Needham, Mass.-based financial services and technology consultancy.

In spite of the technological and management challenges, Soifer said it is still easier for institutional banks to acquire retail brokerages than try to develop their own equity underwriting capabilities.

To underwrite stocks, most banks would have to build brand-new systems to support their sales and trading operations, he said. □

TRADING BLOCK

Analysts say these brokerages are ripe for banks to acquire:

Legg Mason, Inc.
Baltimore

Raymond James
& Associates, Inc.
St. Petersburg, Fla.

Robertson, Stephens
& Co. LLP
San Francisco

Piper Jaffray, Inc.
Minneapolis

Lehman Brothers
Holdings, Inc.
New York

Data warehouse helps Delaware police

CONTINUED FROM PAGE 65

tion is over in less than a day.

That is because of a new Delaware state police data warehouse that consolidates criminal and other data from several police agencies and computers around the state into one large repository of information.

Using the data warehouse, the homicide investigators can instantly get data they would have had to otherwise compile from multiple state and county computers.

"It gave our investigators one place to go to for everything," Moses said.

With more than 2 million records representing three years' worth of data, the Delaware police warehouse contains a wide spectrum of information, including arrest records and offender profiles, domestic abuse cases, high-crime areas, drug files, stolen vehicle information, missing persons reports, gangs, sex offender lists and information on victims, suspects and witnesses.

"It is an excellent idea to integrate the information this way," said Wilpen Gorr, professor of public policy and MIS at Carnegie Mellon University in Pittsburgh.

"Too often in government, you find islands of extremely valuable information that just don't talk to each other," Gorr said. "As a result, what takes about a minute to accomplish on an integrated system like a data warehouse takes hours to accomplish."

Using the data warehouse, Delaware state police officials hope to speed up investigations, analyze crime trends, improve manpower and resource allocation and better evaluate drug and gang-control programs.

For example, police can quickly map high-crime areas or evaluate the threat of crime based on previous incidents in a particular area. And they can use the information to allocate additional resources to a particular area if necessary, Moses said. Previously, officers would have to go to each county and manually retrieve the relevant statistics to come to a similar decision.

"For the first time, we have the ability to look at the overall picture in a way we have never been able to before," Moses said.

The data warehouse, which has been in testing mode for the past six months, contains information culled from two IBM mainframes — one that belongs to the Delaware Criminal Justice Department and the other to the state's Motor Vehicles Department.

The warehouse also contains information from the state's database of 911 calls contained in a separate IBM AS/400 platform.

The warehouse resides on an HP-9000 Unix server that runs Germany-based Software AG's Adabas database software and its Super Natural and SourcePoint tools to extract and load data into the warehouse. The police department also uses Toronto-based Speedware Corp.'s Esperant reporting tool for data analysis and querying. The system is expected to be fully implemented by year's end. □

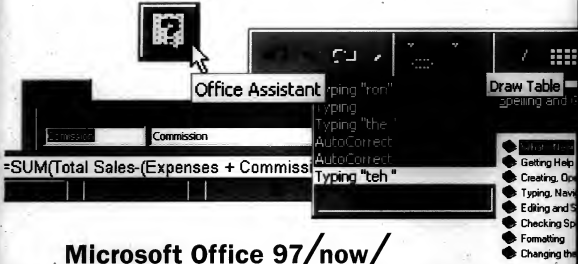
SHORTS

Group reports on IRS

The Information Technology Association of America offered recommendations for the much-criticized Internal Revenue Service to improve its systems modernization project. The 11,000-member, Arlington, Va.-based group advised the IRS to link technology changes to the agency's business objectives and to articulate its overall objectives throughout government.

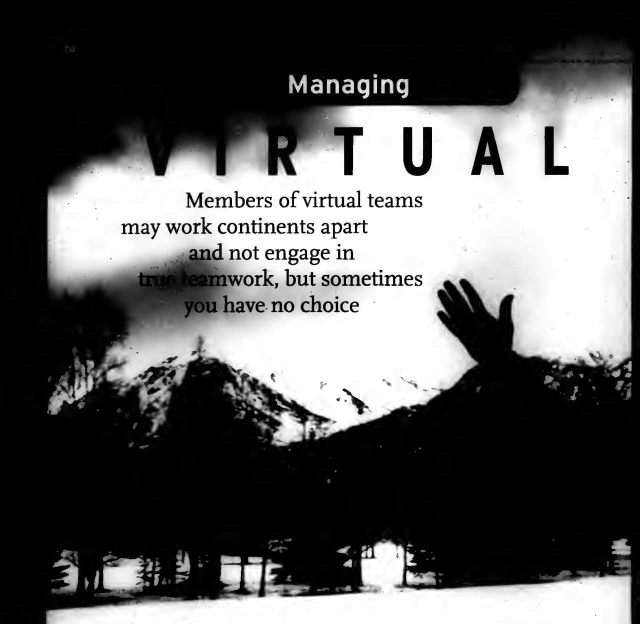
Few want 'net video

Demand within Fortune 1,000 companies for Internet video technology is low, despite a push from vendors, according to a recent survey by Forrester Research, Inc. in Cambridge, Mass.



Microsoft Office 97/now/

There's nothing
from your users.



Managing VIRTUAL

Members of virtual teams
may work continents apart
and not engage in
true teamwork, but sometimes
you have no choice

BY KATHLEEN MELYMUKA

"Virtual team" is an oxymoron. A geographically dispersed workgroup can never achieve the "gel" that makes a team greater than the sum of its parts. That's what team guru and *Peopleware* author Tom DeMarco says.

"The idea violates my intellectual underpinnings of how teams work properly," he explains. "They're never going to be a team, and the cost [in productivity] of separation is huge."

All true.

Virtual teams are counterintuitive, difficult to design, costly and complex to implement, messy to manage and far less productive than "real" teams.

But they address the needs of a new work environment that has become increasingly common: An environment in which downsizing has left a veneer of expertise to cover a global operation or in which mergers have created a patchwork of mismatched skills and needs.

"As industry becomes more global and [has] gone though years of downsizing, technical depth isn't what it used to be. Simultaneously, technical knowledge needs to be applied around the globe at a faster rate," says Mark Armentrout, manager of information technology and facility management at ARCO Alaska, Inc. in Anchorage.

Virtual teams allow ARCO to deal with that reality.

"We have expertise that distinguishes us in industry," Armentrout says. "Part of the application of that technology can be through virtual teams."

ARCO has set up what might be described as virtual centers of excellence: pools of experts in areas such as seismic technologies, reservoir management and drilling.

As projects come up worldwide, virtual team members are chosen from the specialty areas "to exploit [the] transfer of technology where it needs to be," he says.

For example, when an Algerian oil field partner faces a mechanical problem, the ARCO virtual team that oversees construction of the wells would include a drilling expert who can diagnose the problem via video, consult the manufac-

Look outward
IS managers need to look outside company walls as they seek new uses for IT, columnist Jim Champy writes. Page 77

REALITIES

turer by way of electronic mail and send the new part that same day.

"In a couple hours, we can diagnose the problem and determine how to fix it," Armentrout says. "If you're eliminating two weeks of downtime at 50,000 barrels a day, you've saved a lot of money."

Are virtual teams less productive? "That depends on your view of the world," he says. "Say we brought all the experts to Algeria and worked full time on it. Would that be more effective for Algeria? Yes."

Virtual realities, page 72

CHRIS ABENO

CONTINUED FROM PAGE 71

"But I'm trying to multithread a number of projects where you only need these experts at certain points in the life of the project. I take a macro view of all ARCO opportunities and assets and find they're much more productive employed where they are," Armentrout says.

The reality of life after merger required more than traditional teams could provide at Lockheed Martin Corp.

The Bethesda, Md., company, grew out of the merger of Martin Marietta, Lockheed and General Electric's Aerospace Division. Within them were other companies that had been merged earlier. The result was a mix of skills and problems that seldom matched geographically.

"Having the wrong skills in the wrong place most of the time was what drove us to think about virtual teams," says Joe Cleveland, president of Lockheed Martin Enterprise Information Systems.

Virtual teams at Lockheed are built around a triangle made up of a member each from client service, applications and infrastructure. "The triangle is the building block for how we operate," Cleveland says. "That small unit considers itself a team, has a customer and has virtual access to [the] rest of the pool of resources in their disciplines."

For example, a team that serves a client in Orlando may want to set up more electronic commerce, including World Wide Web and E-mail applications.

"If you tried to do it with the dedicated expertise in Orlando, you may not have the best experts," Cleveland explains. "But if you have the visibility of skills across the corporation by portfolio, rather than by where they're located, you could direct the best skills toward Orlando to solve your problem."

Cleveland admits virtual teams take a productivity hit.

"Sure, if we could co-locate these people it would improve productivity, but the practical situation is we have a decentralized customer, so the trade-off is in the right direction," he says.

Despite their innate drawbacks, there are situations where virtual teams make sense.

IS managers who have virtually been there say there's a lot you can do to optimize the virtual experience for your team and minimize performance hits for your company. ☐

Melymuka is a freelance writer in Duxbury, Mass.

TIPS FOR TEAMS

The success of virtual teams depends on the following issues:

CORPORATE CULTURE

"The most important thing is to establish a culture that promotes the team," says Joe Cleveland, president of Lockheed Martin Enterprise Information Systems. "You've got to create the sense that you share the wins and losses. It can't be that one part of a team wins and another loses."

PEOPLE

"The chemistry of the group is very important," says Fred Hencke, director of enabling technologies at Computer Task Group, Inc., a Buffalo, N.Y., consulting firm. Hencke facilitates a virtual team that deals with the Internet and intranets, Web-enabled applications and electronic commerce. "It's really important that people have good verbal and listening skills and reasonably good writing skills," he says. "They have to be able to articulate thoughts and concerns in an open and sharing way."

TIME

"We can't change the fact that Europe is five or six hours ahead and Japan is in a whole different day," says Barry Caldwell, supervisor of computer-aided industrial design technologies at Ford Corporate Design, a division of Ford Motor Co. in Dearborn, Mich. "But virtual teams can be extremely effective if you can have people working in Italy or Germany — five hours ahead of you — and they can hand work off to Dearborn at the end of their day, and you can carry it further and then pass it back. Instead of an eight-hour day, you can get 14 hours."

On the other hand, "if you're going to do model fabrication in Germany with data from the U.S., that's backward, so you try to coordinate those kinds of activities," Caldwell says.

COMMUNICATION

Without face-to-face communication "you definitely lose some of the camaraderie, the synergy," says Virginia Lacker, a senior partner at Management Strategies, Inc. in San Francisco. She recently led an international team in developing a Japanese-language version of an Internet search service.

"I try to be as expressive as possible in E-mail communications; try to put emotion in it," Lacker says. "If you're in a crummy mood, say so. It gets people feeling more like humans, like a part of a team rather than a cog in a wheel."

LIVE OR NOT LIVE?

"You need to know when to be synchronous [in real time] and when you can be asynchronous," says Mark Armentrout of ARCO. "Theoretically, asynchronous is more effective because you can allocate time as you desire."

"But to launch a team with clear objectives, synchronous technology is important — like video so they can read each other's facial expressions. It allows them to get established on a more personal level before they get into technical work," he says.

TOOLS

In a project involving Japan and California, Lacker belatedly found that the Japanese version of a major application was different. "Take nothing for granted," she says. "Do a dry run in the beginning of the project of every type of transfer you may need to encounter so there's time enough to recover from problems that will turn up. Otherwise, when they send this file from Japan, you'll find out you can't open it."

TECHNOLOGY

"We've found a team discussion may be dominated by people who are more comfortable with the technology," Armentrout says. "Experts in the field may not be as keyboard-comfortable and might not be as participative and skew the debate. The leader has to be sure he's getting input from all the players."

LIMITS

"Competent people are sought out by a lot of folks," Armentrout says. "You have to be careful of putting people on too many teams."

Although this is dangerous in any workplace, it's particularly so in virtual teams, where people are dispersed and it isn't immediately apparent how thin a person is being spread.

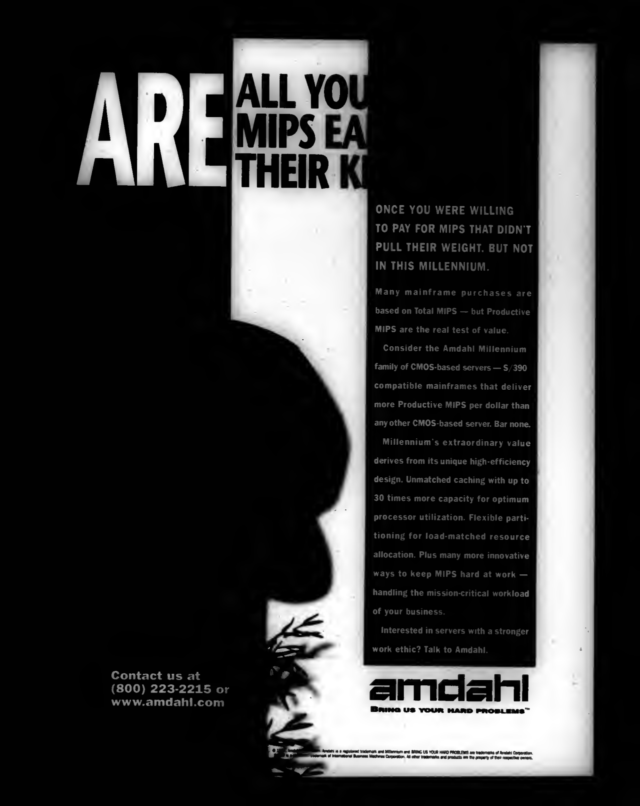
SUPPORT

"In most places, there is some accommodation for 24-hour support, but it may be somebody with a pager," Lacker says. "If you can swing it, get on-site coverage from network and system support during the working hours of everybody on the project."

CULTURAL DIFFERENCES

"With international teams, there's a difference in communication style," Lacker says. "As an American project manager, I was expecting that if I was proposing something stupid, I would hear it from the people on the team. In reality, I had a plan with a fatal flaw, and the Japanese team members knew it, but it was not their style of communication to embarrass me by telling me."

— Kathleen Melymuka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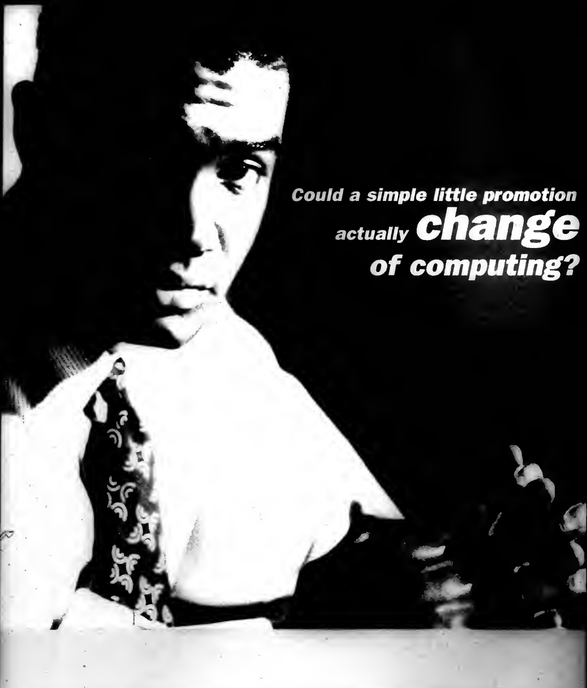
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Developer output plunges

The constant need to learn new technology is taking a heavy toll on developers' productivity. That's the conclusion of Meta Group, Inc.'s Software Engineering Productivity Strategy Service, which estimates that the productivity of American developers was cut almost in half last year. Those depressing figures are based on surveys of 404 companies worldwide. The polling was conducted by Rubin Systems, Inc. in Pound Ridge, N.Y., says Malcolm Slovin, a vice president and service director at Meta Group. Lines of code per programmer fell from 7,500 in 1994 to 6,900 in 1995 and then plunged to 3,540 last year, Slovin says. When measured by function points, the pattern was similar: American developers produced an average of 96 function points in 1994, 88 in 1995 and only 41.7 last year.

Slovin says productivity is down because developers, particularly in the U.S., are spending more time learning new technologies and trying to solve their organizations' year 2000 problems. One bright spot: "Quality went up significantly in the U.S.," Slovin says. It fell from 2.3 defects per 1,000 lines of code in 1995 to 1.15 defect per 1,000 lines last year.

Tom Kaminski says he's seen the productivity drop firsthand at Career Systems Development Corp. in Rochester, N.Y., which manages training programs for government agencies. Kaminski, the company's director of information systems, says productivity has declined because of the learning needed to change "our development platforms from character-based systems to Windows-based systems." His IS organization also is investing time and money to come up with standard development processes to improve quality in the long run.

But this investment means delaying the conversion of some applications from character-based applications to newer, graphical platforms, he says.

— Robert L. Scheier

S[illegible] THINKING FROM THE OUTSIDE

When information technology managers and businesspeople think rationally about new uses for [illegible], that could be a problem. [illegible] fact, the strict application of [illegible] can produce misguided extrapolations such as this:

If a calculator is a handy thing, and a computer is useful, and paper and pencil are portable, why not create a pen-based computer? It's a practice that's often repeated: Extend technology to automate what we already know.

But the need for different thinking about technology has never been greater, particularly in the midst of the almost "irrational" explosion of Internet use. Consider these statistics from various research firms:

Only 30% of World Wide Web-based companies made a profit last year. Worldwide electronic commerce for this year is expected to total only $2.3 billion and will rise to only $6.6 billion by 2000.

Yet, at a cost of anywhere from $10,000 to $10 million each, 67% of all Fortune 1,000 companies have created Web sites. Why? An expected 68 million users will be online by the end of this year, and there ought to be a way to make big money here. The question is, how?

If I knew the answer, I wouldn't be a consultant. I would be in an Internet business. I do know there has never been more confusion on the part of businesspeople about IT, and a lot of that confusion comes from their past experiences.

Traditionally, IT was a business function, a cost center. Now with the Internet touching their customers, there is a whole set of issues about the use of technology and a whole new set of opportunities.

NEW RULES

For the past 10 years, IT managers have been trained to respond to internal "customers." Now they are being told that the only real customer is the one outside. So the game has changed abruptly. All of a sudden, IT managers will be judged by the success of the business as a whole.

The challenge is to learn to think differently about IT — and to begin by thinking from the outside in. That is, to deeply understand what customers really want and then to go beyond that and use new technology to create a need customers didn't know they had.

It sounds logical, doesn't it? But most IT managers and businesspeople think from the inside out, which is especially true of technology companies themselves.

But I'd like to offer two examples of outside-in thinking. The first is represented in the following quote from Scott Cook, CEO of Intuit. It appeared in the February issue of *Red Herring*:

"Consumer adoption is driven much more by an understanding of the customer's psychology than it is by technology. The technology is there; in fact, in some cases the technology is overused. What's missing is an understanding of how customers actually think and work in this space and how to build something that gets customers to want to use it."

Cook went on to say that despite terrible advertising, high prices, software bugs and "lousy customer service," Intuit became the immediate accounting software leader in 1992. How? By doing "a lot of market research," he explained: "And the most amazing thing we learned was that two-thirds of the bookkeepers in small businesses don't do debit-and-credit accounting, which was the core of existing accounting software. The entire accounting software industry had never bothered to understand the customer. Ours was simply the better software for most bookkeepers."

REBEL VIEWS

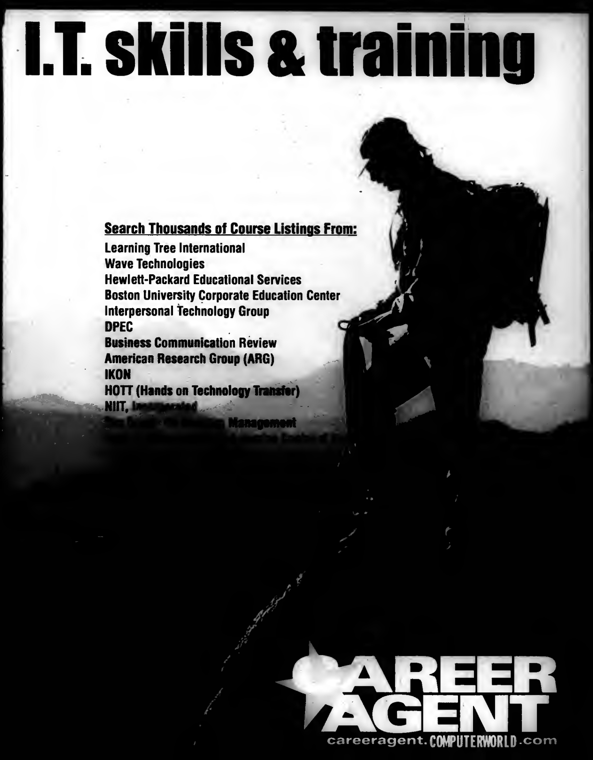
The second "outside" view is embodied by industry rebels. Indeed, technology lore is full of individuals who came at solutions from a "way out" angle and from an abiding infatuation with technology itself. But these are also people who anticipate customer needs. Think of Steve Jobs, the early Bill Gates and others.

In a different industry, Bob Lutz, vice chairman of Chrysler Corp., noted in the Jan. 13 issue of *Forbes* how Chrysler's "gear heads" are what make the difference in his company. They have brought us not only "cab-forward" automobile design, but the Plymouth Prowler, a street rod stunner that's almost impossible to think of as coming from Detroit.

Interestingly, Lutz has also observed, "Let's face it, the customer [is] just a rear-view mirror. … When it comes to the future, why should we expect the customer to be the expert in clairvoyance or creativity? After all, isn't that really what he expects us to be?"

Indeed, creativity and innovation are exactly what customers want. In another column, I'll offer some ideas about ways to think about technology innovations. But as to innovation's ultimate origins, who can tell? □

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His Internet address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.



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Buyer's Guide

PRODUCT REVIEW: [illegible]
how it can be a good, single-[illegible]
INSIDE: Internet whiteboard software tools still have to work out a few kinks.

Netscape Communicator: More than a browser

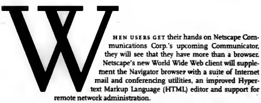
By Lenny Bailes

WHEN USERS GET their hands on Netscape Communications Corp.'s upcoming Communicator, they will see that they have more than a browser. Netscape's new World Wide Web client will supplement the Navigator browser with a suite of Internet mail and conferencing utilities, an improved Hypertext Markup Language (HTML) editor and support for remote network administration.

The fourth edition of the Navigator browser itself includes a more streamlined, Java-enhanced browsing/bookmarking interface.

In the Standard Edition of Communicator, the browser is integrated with Netscape's new Internet productivity suite, which includes the following:

- Netscape Messenger: an open-standards electronic-mail client that supports Post Office Protocol 3 (POP3), Internet Mail Access Protocol 4 (IMAP4) and Simple Mail Transfer Protocol mail servers.
- Netscape Collabra: an Internet/intranet "discussion group client" that serves as a newsgroup reader.
- Netscape Composer: an improved version of the HTML page editor formerly included in Navigator Gold.
- Netscape Conference: a real-time collaboration and conferencing utility with whiteboard and voice communication support.


Communicator extends the functions of today's Navigator and adds nonbrowser functions such as calendaring and messaging

The Professional Edition contains a personal calendar/scheduler, Internet InterOrb Protocol communication with Common Object Request Broker Architecture objects, IBM 3270 Host-On-Demand for mainframe data access, and new support for remote administration and Netscape's Enterprise Calendaring and Scheduling Server.

I reviewed the third beta release of Communicator, which was delivered earlier this month. This release adds new security features, multiple user profiles, improvements to Netscape's Dynamic HTML model, a faster Java compiler, off-line newsgroup browsing and a more complete HTML help system.

Communicator Beta 3 isn't bugfree, but I found it to be more stable than Beta 2.

This version of Communicator, due for final release before July, was expected to be essentially feature-complete. However, Netscape this month announced it will add a component called Netcaster, a Web "push" technology, to the final release of the Communicator suite.

The browser's new, visually appealing, drag-and-drop interface should please fans of Microsoft Corp.'s Internet Explorer.

The fixed tool bar and uniform resource locator display of Navigator 3.0 have been replaced with stylized drag-and-drop components. Open and Close tabs permit tool bars to be opened or hidden from view, freeing up more space to display content.

The security enhancements should be popular with network administrators.

The Secure Multipurpose Internet Mail Extension security standard supported in the Messenger mail client works across private

More than a browser, page 82

REVIEW ▸
Netscape Communicator

BETA VERSION 3

NETSCAPE COMMUNICATIONS CORP.
Mountain View, Calif.
(415) 254-1900
home.netscape.com

- Netscape Communicator Standard Edition costs $49
- Professional Edition costs $79

PROS

Supplements browser with suite of Internet mail and conferencing utilities; offers Java support

CONS

Must reinstall plug-ins; still can't cache, download and organize visited Web sites for off-line browsing

More than a browser

CONTINUED FROM PAGE 81

and public networks, allowing certificated electronic mail and participation in private discussion groups. Also, messages can be encrypted.

SECURE JAVA

Administrators who are worried about security holes in Internet Explorer will be happy with Netscape's signed-Java support. Java applets can be made to request permission for direct disk access and other access privileges.

Support for JavaSoft's JAR archive format allows authenticated Netscape plug-ins to be downloaded and installed automatically.

Third parties and corporate developers can use JAR archives to automate the distribution and installation of any software component.

One of the things missing from this release is automatic migration of plug-ins installed in Navigator 3.0. Your old plug-ins must be reinstalled to work in Communicator. Automatic plug-in migration will be implemented in the final release, according to Netscape.

Network administrators will appreciate the automatic installation and configuration options available in the Professional Edition. Automatic administration is implemented through Netscape's Administration Kit 4.0. The kit allows centralized configuration of each Communicator network client.

Communicator's Collabra Discussion Client is an enhancement of the Internet newsgroup reader bundled with Navigator 3.0. When Communicator is used with Netscape's Collabra Discussion Server, administrators may set up private intranet discussion forums that appear transparently alongside standard Usenet newsgroups.

The Communicator mail client and newsreader have rules-based message filters and automated message downloading for off-line browsing. However, the Collabra newsreader interface is a bit awkward for Usenet browsing.

Netscape's version of Dynamic HTML — a set of browser display enhancements — is more aggressive than Microsoft's identically named feature in Internet Explorer 4.0. Both Dynamic HTML implementations allow designers to position and layer graphics to hide or reveal parts of a Web page when the user clicks in an appropriate spot. Netscape's Dynamic HTML was designed for compatibility across 17 operating platforms.

CALENDAR FEATURES

Netscape Calendar is a lightweight scheduler and personal information manager included in the Professional Edition that works with Netscape's Calendar Server. Users may publish their schedules and agendas across the Internet or a LAN.

Netscape Conference, an Internet/intranet conferencing utility, has fewer features than Microsoft's NetMeeting. It doesn't support videoconferencing or application sharing, but it does allow voice teleconferencing. It has a slick, graphic calling-card feature and a well-implemented whiteboard.

Intended as a one-stop enterprise computing solution, the full Communicator suite occupies a hefty 26M bytes of disk space, compared with about 8.5M bytes for Navigator 3.01.

As long as Netscape is adding browser enhancements, it might do well to include some "pull" technology, as well as push, in Communicator.

Navigator currently lacks the ability to cache, download and organize visited Web sites for off-line browsing.

The Composer HTML editor lacks support for frames, and the Collabra newsreader lacks amenities favored by heavy Usenet participants, such as selective message download and bozo filters.

Real Internet junkies will probably continue to look for those features in other packages.

However, Communicator's enterprise components may make it valuable as a single-package cross-platform Internet client — after some interface and display glitches are solved. □

Bailes is a San Francisco-based reviewer who can be reached at lennyb@slip.net.

PRODUCT REVIEW

Internet whiteboard tools still have a few kinks

By Ross M. Greenberg

FIRST, LET'S TAKE a look at what Internet whiteboarding is and what it isn't. Basically, it's software that allows you to share collaborative efforts — doodles or documents — during a teleconference. It isn't a medium for designing beautiful art, collaboratively, in real time.

Consider why you use a flipchart, a real whiteboard, an overhead projector, a movie-screen display and all those handout materials. Generally, they're used for getting the word out during a meeting. Such meetings can be delineated into two types: a collaborative type and a presentation type.

I tested three popular whiteboard products to see how they performed in a collaborative environment comprising five programmers from three countries and four sites. The results were mixed.

When combined with Internet telephony, I was able to get a lot accomplished using the whiteboard, but only on a one-to-one basis. None of the products I looked at were set up for the real world. None had the ability to do a many-to-many or even a one-to-many conference call.

MICROSOFT'S NetMeeting can be downloaded for free. It's primarily a user-to-user telephony product with a more-than-adequate whiteboard thrown in. I liked the almost intuitive cut-and-paste ability to bring up bit-map images from other applications, but there is no capability for remote manipulation of those images. Drawing arrows and annotating images is easy — and there's a cute hand-pointer you can manipulate as you wish.

I was less than thrilled when I tried to erase a small part of a line segment I had drawn and the entire line vanished. That shows that the objects aren't really bit-mapped.

Microsoft's NetMeeting is well-suited for presentation-type whiteboard tasks

NetMeeting is well-suited for presentation-type whiteboards: Get all your slides set, each on individual pages, lock the pages down, and do your presentation to your audience with a chat window open for you to annotate as you go.

REVIEW ▶
NetMeeting
MICROSOFT CORP.
Redmond, Wash.
www.microsoft.com

NetMeeting 2.0, due for release today, also will ship with the coming release of Internet Explorer 4.0. Enhancements, according to Microsoft, include E-mail messaging, Windows NT 4.0 support, standards-based Internet telephony and videoconferencing.

VOCALTEC'S Internet Conference Professional (ICP) is a cool product, but it can't be downloaded for free. It costs $149 for the professional version and $49 for the personal one.

The personal edition might do well enough in many efforts. ICP lets all of the Microsoft Office products and any product with OLE capabilities "share" on the whiteboard.

Again, the bit-map images you import onto the whiteboard cannot be manipulated bit by bit. Drawing annotations atop a bit-map image and then moving the graphic leaves the annotation behind, but prepared slides will help avoid this.

REVIEW ▶
Internet Conference Professional
VOCALTEC, INC.
Northvale, N.J.
www.vocaltec.com

Erasing is much better in ICP. It allows portions of a newly drawn object to be erased.

You'll love the integrated browser portion of ICP: All participants get a decent browser brought up in the whiteboard, and they can follow the conference leader from one uniform resource locator to another.

ROUNDTABLE is a mature product, and that's a good thing. An unlimited license to use RoundTable is pricey at $1,000, but that's inexpensive on a typical per-seat basis. The five-user license costs $200. A client/server configuration gives total control of corporate whiteboarding, and security is superb.

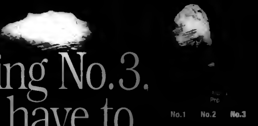
Fascinating voice-generation technology allows each conference member to have a voice profile to use for their typed comments in a session. Drawing seemed slow on a 28.8K bit/sec. line, but it appears there's no local drawing: What you draw gets sent to the server, which echoes it back to your client and every other conference member. □

REVIEW ▶
RoundTable
FOREFRONT GROUP, INC.
Houston
www.ffg.com

SUMMARY ▶

Each of the products has its strengths: NetMeeting seems better suited for one-to-many presentations; ICP is a good match of collaborative back-of-the-envelope work between peers; and RoundTable seems more of a heavy-duty product for the serious user. Surprisingly, the pricing of the products seems well-suited for their capabilities and target audiences. All three products need enhanced multiparty telephony capabilities to be truly useful as collaborative products.

Greenberg is a reviewer based in New Kingston, N.Y., and can be reached at greenber@ramnet.com.



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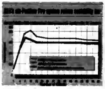

PARALLEL PARKING A BATTLESHIP

By Jaikumar Vijayan

Hewlett-Packard is gambling on partnerships and commodity components to build architectures for enterprise computing. At stake: its huge installed base and customer goodwill.

WITH NEARLY a half-century of computing history behind its name, Hewlett-Packard Co. is a behemoth in transition.

The $38.4 billion vendor of hardware and software is resolutely turning itself into a megaintegrator of enterprise products based on commodity components and built-in partnerships with Microsoft Corp. and Intel Corp.

Yet those same moves mean that HP must lead its vast installed base through potentially disruptive and costly technology migrations.

"It is going to be one heck of a ride for HP and its users," says Doug Eltoft, chairman of HP's Interworks user group, which represents about 10,000 HP users worldwide. "The challenge that Lew Platt faces is how to get all the different parts of HP blending in and following the same strategy." Platt is HP's chairman and CEO.

HP also faces the following challenges:

- Convincing a vast and far-flung installed base that its plans for a new architecture don't signal the abandonment of Unix or the proprietary MPE operating system. Even more

Parallel parking, page 86

AlliedSignal Aerospace CIO Paul [illegible]: HP is "more than just a hardware peddler"

ALAN LEVENSON

PARALLEL PARKING A BATTLESHIP

CONTINUED FROM PAGE 85

important, selling those users on the benefits of switching to yet another new platform based on the unproven IA-64 technology being co-developed with Intel.

•Counteracting the erosion of the impressive revenue growth it recorded in the first half of the 1990s. Between 1994 and 1995, for instance, HP revenue rose by about 35%. But that growth slowed to about 20% last year.

Also, in a future dominated by lower-margin products, more of HP's profits will have to come from value-adds such as integration services and support, rather than from hardware and software sales.

▪Retaining ownership of its key technologies while working with Intel, Microsoft and others to build a common enterprise environment.

Analysts say much of HP's success stemmed from proprietary technologies such as its PA-RISC chip architecture and its MPE and Unix operating systems. "HP is taking the partnership approach to removing conflict. Instead of competing with other technologies, they want to roll it all together," says Peter ffoulkes, an analyst at Dataquest in Mountain View, Calif.

GOODWILL

But weighing heavily in HP's favor is the enormous goodwill of its customers.

"I have no major concerns about their ability to pull it off," says Paul Hoedeman, chief information officer at Allied-Signal Aerospace in Torrance, Calif. "They have done this sort of a transition before" when migrating users from proprietary environments to Unix servers and PCs, he says.

"The thing about HP is they are more than just a hardware peddler," Hoedeman adds. "They sort of act like your partners and are willing to listen to you and share their strategies with their customers."

Still, that strategy remains unclear to most HP users, according to a recent *Computerworld* survey of 106 corporate information systems professionals. The survey showed that only 15% of HP's customers fully understood the company's plans to migrate users from MPE and Unix to Microsoft's Windows NT.

By 2000, HP plans to deliver its Extended Enterprise environment of Unix and NT servers capable of supporting up to 256 CPUs, as well as World Wide Web-based security and connectivity products from several vendors.

By melding Intel's x86-based architecture with HP's PA-RISC technology, users supposedly will be able to run Unix and NT enterprise applications equally well. That would give HP users access to more than 50,000 commercial applications from both environments. The first systems based on the IA-64 architecture are expected to start shipping by mid-1999.

When it comes to executing on strategy, a whopping majority (75%) of users in the *Computerworld* survey gave high marks to HP.

"I think it is an excellent strategy," says Larry Panatera, vice president and CIO at Snap-on Tools Corp. in Kenosha, Wis. "Where I need a high-transaction throughput, I can put in a Unix system, and where I have a small-to-medium transaction, I can place an NT platform."

Plugging in to these massive servers will be a range of network computers, PCs and Web-enabled clients such as HP printers and measurement equipment.

HP's 1996 net revenue was $38.4 billion. Computer products, services and support accounted for $31.4 billion.

"HP has been pretty good at delivering what they promise. But until they deliver, all this is just marketing," says Fred Mallet, principal of Fame Computer Education, a Unix training institute in Corpus Christi, Texas.

Along with its substantial technology shifts, HP is realigning its business model from a loose federation of highly independent divisions to a more tightly focused organization with one mission. For the first time in its history, HP is tying together the various bits and pieces of its technology empire — from testing and measurement equipment and printers to superservers — under one framework dubbed "Pervasive Solutions Foundation."

"We have used our [decentralized] culture to compete very aggressively in a lot of markets," says Richard E. Belluzzo, executive vice president of HP's computer organization. "But now, we are headed for a more complex world. We need to be a little more integrated than before."

HP also is developing several technologies that it will deliver over the next two years, aimed at making the Web a safer place in which to do business.

Just last week, for instance, HP acquired VeriFone, Inc. in Redwood City, Calif., in a $1.18 billion transaction aimed at delivering electronic-commerce and smart-card applications for financial service organizations, businesses and consumers.

TIGHTER MARGINS?

The move to a more unified enterprise based on standardized technologies implies lower profits. Like other Unix vendors, HP has leveraged enormous margins from its enterprise servers. A high-end HP 9000 server, for instance, sells for hundreds of thousands of dollars more than an Intel-based PC server.

"People raised the same concerns when we moved to Unix a few years ago. But we know how to make the required margins," Belluzzo says.

"HP has never needed a proprietary hook to compete in such highly competitive markets like printers and PCs," Hoedeman says. "And they are not going to need it now."

What separates HP from other vendors is "the overall breadth of their products, their staying power and the depth of support they can bring to the picture," says Dennis Jones, CIO at Federal Express Corp. in Memphis, another major HP customer.

Worries that HP will abandon its Unix market are dismissed by some customers. "Unix is too big a market for them, and they have too many customers with very large investments in Unix applications," Panatera says.

Belluzzo says HP will let users choose their own pace for migrating to the new environment. HP will continue to support organizations in their existing environments for as long as it takes, he says.

For instance, HP recently announced a major alliance with Microsoft to develop a range of Unix/NT integration tools and services, some of which it hopes to start delivering by summer. For its Unix users, HP is pursuing plans that include full 64-bit support by early next year.

Since last fall, HP also has been providing some of its largest customers with dedicated service representatives and a full range of integration and turnkey application services from a specially set up Enterprise Services Organization.

Many customers are closely watching HP's tightening partnership arrangements with Intel and Microsoft, as neither vendor is well-known for generosity with its key technologies.

"When you go dancing with Microsoft, you can get your toes stepped on pretty badly," Eltoft says. "The danger when projecting too far out into the future is that things change. But hopefully, HP can pull this off." □

Vijayan is Computerworld's senior editor, midrange hardware and Unix operating systems. His Internet address is jaikumar_vijayan@cw.com.

SPEAK SOFTLY

"Flashy" is hardly the first word anyone would associate with Hewlett-Packard.

The second-largest systems vendor in the U.S. is notably low-key. Its top executives remain among the most faceless in an industry of high-profile, apotlight-seeking personalities such as Microsoft's Bill Gates, Oracle Corp.'s Larry Ellison and Sun Microsystems, Inc.'s Scott McNealy.

Its products often are among the leaders in any given market niche. Yet rarely are its technologies trendsetting in the way that Sun's Java or Oracle's Network Computer have been.

"We are not a flamboyant company," says Richard E. Belluzzo, executive vice president of HP's computer organization. "Our customers don't want us to be."

Customers seem to back up that contention.

Although its overall growth has slowed since 1990, HP has nearly doubled its revenue, selling bread-and-butter enterprise computing technology. Today, the company holds the lead spot in the Unix RISC server and workstation marketplace, runs second behind Compaq Computer Corp. in PC servers and is among the top five suppliers of PCs to corporate America, according to several market research firms.

"HP is not a real technical innovator. It is not always among the first to exploit a new market, and it does not exactly have great marketing," says Thomas Kucharvy, president of Summit Strategies, Inc. in Boston. "But boy, they sure can execute on strategy."

"The competition may not say this openly, but we are Enemy No. 1 in every market we compete in," Belluzzo says. — Jaikumar Vijayan

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All that glitters...

BY ROCHELLE GARNER

PeopleSoft, SAP and Cobol can be the key to a quick stash. But companies struggling to compete can offer riches better than cash.

IT'S GOOD TO BE THE KING. And in today's job market, the new royalty are people who have the hottest computer skills.

Possess those skills, and companies will offer you high salaries, signing bonuses and even stock options.

Consider: Those with PeopleSoft skills can now pull in $70,000 to $100,000 per year. Experts in configuring SAP systems can make from $80,000 to $120,000. And Cobol and assembly language programmers can negotiate $90,000 as companies recognize the issues surrounding the year 2000.

"I've been in recruiting for 15 years, and I definitely think the intensity level of trying to find really skilled people has picked up," says Don Desjardins, a senior technical recruiter at MCI Communications Corp. in Colorado Springs. "We don't raid — that's what headhunters do. But I know headhunters [who are] making a lot of money by luring employees with the carrot of huge salaries."

Naturally, there's a catch: You might hate the kind of company where such record-breaking paychecks can be had.

Sure, you can grab the money by the fistful at some start-up or Big Six consultancy. But that can mean nearly constant travel, 12- to 15-hour workdays and a socially isolating lifestyle.

"You may spend three months in Detroit and move on for two months in Little Rock, Ark.," says Charles A. Muller, a principal at AJM Professional Services in Troy, Mich. "I know plenty of consultants who just burn out after traveling all over the U.S."

Complicating the issue are salaries that rise and fall, depending on the region of the country you're in. Immense salaries are becoming more commonplace, but they aren't yet the norm. So if your idea of the good life includes a nice house in the country, you might not want the big bucks to be had in Silicon Valley. Housing prices in that rarefied suburbia start at nearly $400,000 and climb quickly.

Those issues are good news for most companies that crave the latest technology skills but can't match the gold-wrapped carrots now dangled by consultancies and start-ups. They compete for today's highly skilled workers by offering appealing benefits packages they hope will lure professionals who are willing to settle for merely good money — and a life.

'SHOW ME THE MONEY'

The catch-phrase from the movie *Jerry Maguire* holds a certain resonance for you. Truth be told, you'd honestly own up to being mercenary. No problem, as long as you're skilled in the art of SAP configuration, PeopleSoft, Internet connectivity, object-oriented analysis and data modeling, assembly language, Cobol or — the all-time favorite — project management. Those skill sets are the paths to six-figure salaries.

"I had lunch with someone today who told me [a Big Six consulting firm] offered to double his salary. And for every person he brought on with him, he'd receive a $30,000 bonus," says Leland Freeman, managing director of year 2000 services at Management Support Technology Corp. in Framingham, Mass. "It's a bidding war out there, and I think it will become increasingly more prevalent."

Clearly, this candidate — whom Freeman describes as a "black-belt project manager" adept at Cobol — could conceivably reap $200,000 in his first year. Equally clear, this high-flying project manager will be busy: Gartner Group, Inc. in Stamford, Conn., predicts that companies worldwide will spend between $300 billion and $600 billion to update their systems for the year 2000.

That's why our anonymous project manager can look forward to several years of real money — but not much of a home life.

"Travel is extremely intense. Plus, I would usually put in 60- to 70-hour weeks, with some weeks that were a lot more," says Sandy Rapp, a senior business consultant for the information

All that glitters..., page 93

Good as gold

If money can't buy happiness, what can? Try these answers:

TRAINING

The focus is on education at Merrill Lynch in Princeton, N.J. — at breakfast, lunch, evenings and weekends. And the classroom opportunities are as varied as their times. Topics have included Java, JavaScript, ActiveX and middleware tools. Even full-blown master's degrees in computer science and IS — with all tuition paid.

"We invest over a half-million dollars a year in training," says James Lawler, vice president of advanced office systems and technology at Merrill Lynch. "I get a lot of training for free; I tell vendors if they want to do business with us, they have to come in and train us — and I'm not paying a cent for those classes."

MENTORING

American Greetings boasts one of the highest employee-retention rates among the Fortune 500, says Sandy Rapp, a senior business consultant at the company's information services division in Cleveland. One reason for its low turnover: "New employees have mentors as soon as they walk in the door, and it's not necessarily the person they work for," she says.

The idea is to keep people happy and comfortable. Which is why new employees give feedback — to their mentors and to the department — every month on what they like and don't like about working at the company. "The relationship lasts as long as the employee wants it to last," Rapp says. — Rochelle Garner

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EXECUTIVE TRACK

Bruce Summers, 51, was named director of automated resources at Federal Reserve Automation Services, a unit of the Federal Reserve Bank in Richmond, Va. Summers is responsible for mainframe, network operations and systems technology planning for the 12 Federal Reserve banks. He replaces Carl Powell, who retired last summer.

Anne Allen, 45, was promoted to senior vice president of floor operations at the New York Stock Exchange. Allen joined the stock exchange in 1973 as a management trainee in the market surveillance division. She is responsible for carrying out the exchange's Integrated Technology Program. The program, launched in 1994, is a technical overhaul of the exchange's trading floor. It includes the deployment of wireless communications and high-definition, flat-panel monitors.

Robert V. Napier was named information systems officer at Delphi Automotive Systems, a Pontiac, Mich.-based unit of General Motors Corp. Napier was previously vice president and chief information officer of infrastructure services at Lucent Technologies, Inc.

Bill Swedish was named chief technology officer at the Port of Seattle. He has nearly 20 years of experience in IS, the last three as director of MIS at Seattle Pacific Industries, Inc.

Thomas B. Collins was named CIO at Cookson PLC's Cookson Electronic Materials division in Providence, R.I. He was previously vice president of information technology at Alpha/Fry Group, a division of Cookson.

Ajit Patel was named vice president and CIO at Mossimo, Inc. in Irvine, Calif. He was previously vice president and CIO at Authentic Fitness in Commerce, Calif.

James O. Steeb was named vice president and chief operating officer at Employee Managed Care Corp., a health information and telephone nurse counseling firm in Seattle. Steeb was previously senior vice president and CIO at Access Health, Inc. in Rancho Cordova, Calif.

David Hamilton was named vice president of MIS at ManagedComp, Inc. in Waltham, Mass., a care management organization and developer of managed care workers' compensation programs. He was previously CIO and director of IS at Delta Dental in Sacramento, Calif.

Davor Grgic was promoted to vice president of corporate IS at Kohler Co., a kitchen and bath products company in Kohler, Wis. Grgic was director of corporate IS at Kohler since 1994.

Robert J. Weisenberger was appointed CIO at Molina Medical in Long Beach, Calif. He is responsible for all managed care information activities within the company. He was a director of information services at Friendly Hills Healthcare Network and vice president of IS at Medical Imaging Centers of America, Inc.

The College of Healthcare Information Management Executives announced two appointments to its board of trustees. **Charles C. Emery Jr.**, vice president and CIO at Blue Cross/Blue Shield of New Jersey, was named to a three-year term. **Edward R. Kopetsky**, senior vice president and CIO at Centura Health in Englewood, Colo., was named chairman-elect.

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All that glitters . . .

CONTINUED FROM PAGE 90

services division at American Greetings Corp. in Cleveland.

Don't let Rapp's title fool you: She's out of the consultancy business, having traded in her career at Ernst & Young for a full-time position at American Greetings, her one-time client. "The competition within a consultancy is incredibly fierce, like going after a partnership in a law firm," she says. "You even have to compete for promotions. Plus, I have a small son, and Ernst & Young couldn't guarantee that I would continue to live in Cleveland. It wasn't worth it to me." Quite simply, she says, she didn't want to leave. But American Greetings' "sense of family," was worth it to Rapp.

Quality of life is a factor that many companies highlight in their efforts to attract — and keep — the same information systems talent that consultancies are willing to throw money at. Take MCI. "We sell Colorado Springs — where for $200,000 you could have a mansion in the mountains," Desjardins says. "That, combined with our benefits, our training and nationally competitive salaries, creates a package that's a serious recruiting tool."

Notice the elements: A competitive salary (although no company will say just what that means); benefits, which often include a 401(k), dependent care, telecommuting, adoption assistance, sabbaticals and a variety of bonuses; and a commitment to training. For many people, those things can be more valuable than money.

Merrill Lynch & Co. in Princeton, N.J., is counting on it. It can't compete with sky-high salaries. Its location puts the company at a disadvantage with younger employees who prefer the bright lights of a big city. But it has one of the best training programs east of the Mississippi River. From ActiveX to Java and middleware, to a tuition-paid master's degree in computer science, Merrill Lynch's James Lawler makes sure the more than 300 people in IS can study to their hearts' content.

"It's a question of what we can do to say we are a better firm," says Lawler, vice president of advanced office systems and technology. "We have a lot of instances where people turn down higher salaries for our training."

Besides aiding staff retention, Merrill Lynch's training has another, equally beneficial effect: It keeps outside recruiting to a minimum.

PLAYING FAIR

Staff jealousy can be a real problem for companies that are waving lucrative enticements to outside talent. To curb the problem, businesses have adopted several solutions. Merrill Lynch, for example, develops staff internally as much as possible.

"Firms need to be more savvy," Lawler says. "Instead of looking outside, they need to look inside. Sure, maybe you hire a consultant for a few weeks to coach. But the best way to avoid resentment and to keep salaries manageable is by developing the people you have."

Desjardins says MCI loses some staff to start-ups that offer 20% to 30% raises. But that's the breaks. "There's not enough talent to go around, and we have to be competitive," he says. A third way to manage internal jealousy is to use temporary contract workers — a boon to the mercenary-hearted worker who doesn't mind moving on when the job is finished. That approach fuels the record-breaking salaries IS can now latch on to. And it keeps encouraging companies to constantly raise their own playing field so the talent they have will want to stay.

Yes sir, it's good to be the king. □

Garner is a freelance writer in San Carlos, Calif.

Seniority, shareholding

For companies that can't throw money at potential IS hires, there are ways to stay competitive and still satisfy existing employees.

SALARY MATRIX:
MCI in Colorado Springs can't afford to wage bidding wars for people. It also can't compete for talented staff if its salaries are below the national scale. So MCI relies on a matrix that assigns a salary range to employees based on their grade level, technical skills and years of experience.

"A matrix is about the only way a company can avoid outrageous salaries to new hires and a lot of jealous colleagues," says Don Desjardins, a senior technical recruiter at MCI.

STOCK OPTIONS:
Intel Corp. in Santa Clara, Calif., made history in February when it announced stock options for its 50,000 employees. The company also offers salaries in the 90th percentile range, a benefits package that's competitive even in the hot Silicon Valley market and performance bonuses that seem to come at the drop of a hat.

Why did Intel do it? "The money becomes less of a reason to leave," says Mike Foster, corporate recruiting manager at Intel. Retention levels of those employees who were already receiving stock options had been pretty good, Foster says. "Our problem had been with the next level down. It was too easy for people to be lured away by money," he says. — Rochelle Garner

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PROGRAMMER/ANALYST: (2 positions) 40 hrs/wk, 8 a.m. - 5 p.m., $46,000/yr. Carry out program analysis, program design, coding and testing of computer software systems utilizing IDMS, ISAM and COBOL. Reqr. bachelor's degree in Computer Science or Computer or Electrical or Mechanical Engineering. Reqr. 2 yrs. expr. in job offered OR 2 yrs. expr. in Systems Analysis &/or Programming &/or Engineering &/or Computer Consulting. Reqr. work expr. in dev. of s/w systems utilizing IDMS, ISAM and COBOL. Employer is a s/w consulting/development firm. Relocation to various client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref No-167296.

Software Engineer, 40 hrs/wk, 9am-5pm, $47,000/yr. Design, develop, implement & test software for enterprise resource management systems using client/server technology. Technical design documentation & project management. Tools: Visual Basic; Flashpoint; AS/SET CASE tool; MS Project & Excel; Paradox; Access; Pascal; COBOL, SQL, C, C++, BPCS. M.S. in Computer Science or Management Info. Systems as well as 3 mos. exp. in job offered or as Intern required. Previous exp. must include: client/server technology; Flashpoint; AS/SET; BPCS. Must have proof of legal authority to work permanently in the U.S. Send two copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Sheila Lindsey, Reference #V-IL-18490-L. NO CALLS. An Employer Paid Ad.

PROGRAMMER/ANALYST: (2 positions) 40 hrs/wk. 8 a.m. - 5 p.m., $45,600/yr. Carry out design, development, testing and support of computer application software in a UNIX environment utilizing "C" and X-Windows. Reqr. bachelor's degree in Computer Science, or Electrical Engineering or Mechanical Engineering. Reqr. 2 yr. expr. in job offered or 2 yr. expr. in Systems Analysis &/or Engineering &/or Programming &/or trainee (on campus experience acceptable). Reqr. experience in development of s/w applications &/with UNIX, "C" and X-Windows. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave. Rm. 415, Detroit, MI 48202. Ref No-169196

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Business Applications Developer to research, model, design, develop, implement and maintain business applications systems (including GUI systems), utilizing physical databases and network architecture running on OS/2 and Windows operating systems with DB2 common server; to program using C and Smalltalk languages, SQL, APPC/CPI-C and DDE communications protocols, and object oriented methodologies; to evaluate interface of applications systems with network hardware; and to provide user training and support. Multiple openings available (at least 2). Required at least two years experience in job offered. Successful candidate must be able to perform job duties on date of application. Qualified applicants must presently be eligible for permanent employment in the United States. Salary $45,000 to $66,000 per year, plus employee benefit plan; 40 hours per week. Send resume and details of experience to Michael Honer, Preferred Resources, Inc., 701 Emerson Road, Suite 475, St. Louis, Missouri 63141. An Equal Opportunity Employer.

Sr Systems Analyst - Ann Arbor, MI - Analyze user reqs, design & generate forms for Information Management Systems or a UNIX based client-server environment using ORACLE and PL/SQL. Define standards for development and documentation. Reqs Bach in Comp. Sci., Elect. Engr. or Math and 2yrs exp inc 6 mos exp using ORACLE CASE v5.1 or later. M-F, 8AM-5PM, 40 hrs/wk, $45.00/hr. Send resume to: 7310 Woodward Ave., 4th Fl, Detroit, MI 48202, Ref # 1586-96. Employer Paid Ad.

Senior Programmer Analyst Design and develop credit card processing applications. Design,tune and manage Oracle database for financial/credit card information systems in Client/Server with Client components running on DOS/Windows, Windows-NT and servers running on HP-UX, OpenVMS, Novell NetWare and Windows-NT. Developing in tools such as Oracle Server Manager and SQL*Plus. Design and develop processing applications using Oracle Server programs, PL/SQL 2.3, Visual BASIC, Oracle Objects for OLE, TCP/IP, Microsoft Windows DLLS, OpenVMS DCL and Microsoft Source Safe Version Control software. B.S. Computer science, Electrical engineering or Electronics engineering technology (will accept properly evaluated equivalent degrees). 2 years of related experience in client/server Programming and relational database design. $53,000 per year. Apply at Texas Workforce Commission, Dallas, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX7867082. Ad Paid by an Equal Opportunity Employer.

Consultant to develop front-end tools for mechanical design applications in Motif window programming on HP workstation for ECAD group; create & modify C programs, develop Tool tracking Utility to keep track of usage of all software using Perl; install & configure mechanical finite element software & develop package tools using TCL for design engineer; develop GUI for management of software licenses; responsible for connectivity between IBM PCS and HP workstations; focal point for all hardware problems in mail servers, network file servers, network information servers & troubleshoot in case of server crashes; Reqs. Master's in Comp. Sci., 1 yr exp in job offered or 1 yr related exp such as Unix Systems Administrator or Consultant. Must have exp., in whole or part, in CAD workstations, systems administration, developing & testing softwares; installing network based software, updating network information service databases, diagnosing network problems, maintaining TCP/IP files, developing & using C shell scripts & TDMF/UNIX, $26.90/hr, $40.35/hr. OT, 40 hrs/wk. Send resume to 7310 Woodward Ave., Room 415, Detroit, MI 48202. Ref. #162796 "Employer Paid Ad"

Consultant/Systems Engineer (multiple openings), 40 hrs./wk., 8 am-5 pm, $45,000/yr., overtime as needed, compensated at $20.19/hr. Job requires: Master's degree in Computer Engineering & 3 months experience in Job Offered or as a Consultant or Systems Analyst. Job also reqs., 1) Experience using DOS & UNIX operating systems, 2) Exp. using Bourne & Korn UNIX shells, & 3) 1 graduate course covering the workings of UNIX operating systems. Exp. reqs. 1) & 2) may be met concurrently during the same 3-month period. Job duties: Develop, configure, & integrate UNIX network of heterogeneous platforms consisting of IBM, HP, Sun, & SGI workstations. Troubleshoot problems & assist users. Manage networked file systems & implement UNIX systems security, network queuing, & load balancing on various computer servers. Develop software in Bourne, Korn, & C shell to perform UNIX system functions. Customize computer-aided engineering (CAE) applications & determine/modify UNIX operating system kernel parameters for optimum performance. Qualified applicants should send resume & verification of reqs. to: 7310 Woodward, Rm. 415, Detroit, MI 48202. Ref #133496 Employer Paid Ad.

CONSULTANT: Consult with clients to define need or problem; conduct studies and surveys to obtain data and analyze data to recommend solution; participate in the design, programming and documentation of computer software systems for business, financial, manufacturing, communications and engineering applications, utilizing Informix products including 4GL, and ISQL software languages, and Online and SE databases, AIX operating system and RS6000 and Unisys hardware; participate in the establishment of specifications, quality standards and testing procedures. 1 year experience in the position or 3 years as Systems Analyst required. Experience in related position must include work on projects from requirements analysis, design, test, to implementation; and experience in 4GL and ISQL software languages, and Online and SE databases, AIX operating system and RS6000 and Unisys hardware. 40 hrs./wk, 8:30 a.m. - 5:00 p.m., $50,000/year. Must have proof of legal authority to work permanently in the U.S. Send 2 copies of both resume and cover letter to Illinois Department of Employment Security, 401 South State Street -3 South, Chicago, Illinois 60605. Attn: Joan Sykstus, Reference # V-IL-16345-S. NO CALLS. AN EMPLOYER PAID AD.

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Marriott International, Inc. is currently seeking a **Director of Reservations Systems Support** to join our team located at the **Frederick, MD Network and Computing Center** (near Washington, DC). The experienced professional will lead Reservations Systems Services in TPF Coverage, Systems Programming and Change Control. Responsibilities include: maintaining a high level of performance during rapid growth periods; managing/developing a group of over twenty technical associates; preparing and managing department budget; overseeing all aspects of quality/change control and operating system software/hardware; acting as a liaison with Information Resources departments regarding disaster recovery, applications development and testing.

Requirements:
- Technical knowledge of TPF operating systems, interfaces and application conventions
- Knowledge of IBM Mainframe hardware system including CPUs, DASD and communication controllers; VM and MVS Systems; and Client Server computing and communication with mainframe systems
- Strong leadership, planning and communication skills
- Ability to make quick and sound business decisions regarding system availability and response time
- Vision to grow and develop the Reservations Systems and staff

Marriott offers a competitive salary and benefits package to include fringe and eligibility for stock options. For consideration, please direct resume to: **Marriott International, Inc., Attn: KM/DRS-CW42897, Dept 996.05, Marriott Drive, Washington, D.C. 20058.** EOE M/F/D/V.

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Software Development Engineer: Creates, develops, designs, modifies, and tests software applications for use in commercial electronic message switch software products including establishment and creation of directory modules which would allow such products the ability to perform various functions including directory synchronization, e-mail communication and connectivity, Internet browsers, and address books using messaging protocols and modification of such products to meet networking environment parameters. Will perform such software development using C in a UNIX environment which is running on an AIX or Sun Solaris workstation. Will develop ancillary implementations for use in a multiplatform such as OS2, Windows NT, Windows 95, or DOS. Requires Master's degree in Electrical Engineering. Also requires six months experience in the job to be performed. Education to include completion of one project in the use of a message passing tool product to develop a distributed database system and one project in the creation of Object-Oriented programming to perform program structure analysis. $44,242.64/yr. 40 hrs. week, 9:00 AM to 5:00 PM. Two copies of resume to: Mike Brooks; JETS-ALC, P.O. Box 7972; Madison, WI 53707-7972. Please reference case number C100036.

Programmer/Analyst (3 positions) - Racine, WI. Programming maintenance & dev. of client applications batch & on-line information systems in NATURAL II under ADABAS, using PREDICT Data Dictionary & JCL. Requires 2 yrs. exp. in job offered. 40 hrs/wk., $48,000/yr. Send resume to Michele Jackman, Triad Data Inc., 515 Madison Ave., #1810, New York, NY 10022. Please indicate Position #E-9626

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CASE ANALYST

needed for large client/server application development project targeting DOS, Windows, and MVS operating systems on PC and Mainframe platforms. Applicants need 8+ years programming experience in COBOL, C++ and 2+ years full life cycle development with COMPOSER IEF with GUI preferred. Need proficiency with IEF encyclopedia and familiarity with MVS, MS-Windows, OS/2, DB2, DB2/2 and VSAM DBM's.

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or fax to 205-991-1164
or email to SHK@EBSCO.COM. eoe

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The Navy Exchange Service Command (NEXCOM), a $2 billion multi-division retail organization operating retail shopping complexes on Navy bases worldwide, has rewarding opportunities for talented professionals within our progressive Information Systems Group. *We are looking for the __best__ computer professionals with 2 or more years hands-on-experience in the following areas:*

Data Base/Application Administration (ORACLE-based centralized information systems). Experience working in a UNIX software environment desired.

Network Specialists (LAN/WAN). Experience with Ethernet, TCP/IP and MS Windows 3.1. FDDI and Lotus Smartsuite experience a plus.

Programmers. PICK, BBX, C++, Cobol, SQL.

UNIX System Administration. Knowledge of Windows NT, ORACLE, relational database and C programming desired.

Systems Analysts-Software Support/Integration experience with automated warehouse system within Distribution Centers. Experience in an open system environment utilizing UNIX operating systems across a multi-host systems architecture. Knowledge of ORACLE7 or like databases with associated CASE tools, working with UNIX.

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Selectees will be members of a team of highly talented technologists. In return you will be rewarded with performance based salary increases/bonuses, comprehensive benefits, an attractive location with varied, quality of life activities. Generous relocation package available to qualified applicants. Resumes with salary history should be submitted to the address listed below.

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International Product Consultant (2 positions). Provide technical support to management and sales staff of company in selling the company's CABS2000 customer care and billing system to Global System for Mobile Communications ("GSM") cellular telephone operators in North America. Perform: requirements analysis, gaps analysis of requirements and the CABS2000 customer care and billing system; bid preparation; and demonstration of the CABS2000 customer care and billing system. Requirements: bachelor's degree or equivalent in computer science, natural science, mathematics, management information systems or related field, and either six years of experience in offered position or in technical service and/or product development of customer care and billing systems under GSM standards. 20-30% domestic and international travel. Salary: $80,000 per year. Hours: 40+ (as needed) per week, 8:00a.m. - 5:00p.m., M-F. Submit resume to Brenda Featheringill, Sema Group Telecoms, Inc., 4170 Ashford Dunwoody Rd., Ste. 460, Atlanta, GA 30341.

Senior Policy Analyst - Fraud Early Warning: Plans, develops, tests and documents computer programs, applying knowledge of programming techniques and computer systems. Evaluates user requests for new or modified programs for early credit card fraud warning. Identifies significant variables that correlate with fraud spending behaviors and quantifies correlation relationships that these variables have with fraud behavior. Segments enormously large credit card transaction population to identify high fraud/credit risk transaction or account population. Uses MVS/TSO to access daily authorization log files, uses IBM RS/6000 AIX/UNIX for programming and segmentation analysis, and DEC VAX systems for credit data downloading. Required a master's degree in engineering, mathematics, or physics and minimum one year of experience in above. Annual salary $46,000, 40 hours per week from 9:00 a.m. to 5:00 p.m. Mail two copies of resume and copy of ad to: Department of Labor, Licensing and Regulation, 1100 North Eutaw Street, Room # 212, Baltimore, MD 21201. Job order No. 9678204, job location: Hagerstown, Maryland.

EDI IMPLEMENTATION SPECIALIST (ATLANTA, GA) Analyze data specs for new HUB customers/trading partners, design/implement Trading Partner Packs w/ ANSI X12; interface w/EDI Help Desk to monitor technical calls/resolve problems & act as training resource. B.S. Computer Sci./1 yr exp. computer, tech. support, programming/mn. 1 yr. programming in C++/Visual Basic/1 yr. customer tech. support/ strong knowledge DOS/Windows, EDI/ Electronic Commerce/Computer exp. in retail/auto/petroleum/ electronics industries req'd. 40 hrs/wk, $41,621/yr. OT as needed. Apply in person or by resume to GA Dept. of Labor, Job Order #GA6079032, 2943 N. Druid Hills Rd., Atlanta, GA 30329-3909 or the nearest Dept. of Labor Field Service Office.

Systems Analyst. $41K/yr. 8a-5p, 40hr/wk. Analyze syst and user reqmts/procedures to automate syst processing & to dsgn/dvlp/implmnt syst in Sybase 4.0 using APT, DWB & DB-Library, Powerbuilder, dBase III+, Clipper87 LAN on Unix & HP9000 servers. Must have Bach w/major in Comp Sci or Engg or related field & 1yr exp in job offer or in related occupation of Prgmr or Prgmr Analyst. 1yr reqmt in job offd or in related occupation should incl work using Sybase & Powerbuilder. Job loc: Lawrenceville, GA. Send resume or apply in person at: GADOL, JO#GA 6094183, 1535 Atkinson Rd, Lawrenceville, GA 30243-5601 or nearest Dept of Labor Field Service Office.

Systems Analyst. $41K/yr. 8a-5p, 40hr/wk. Analyze user reqmts & procedures to automate processing by dsgng & dvlpg by using IBM AS/400, CL/400, SQL/400, DB2 & PC-CICS. Maintenance of AS/400 RPG Pgrm Codes as per Hotline reqmts. Dvlpd s/ware for order processing/inventory ctrl/ payroll & mfg modules & acctg. Must have Bach w/a major in Comp Sci or Engg or equiv & 2yr exp in job offd or in related occupations of Prgmr or Prgmr Analyst. Reqd 2yr exp in job offd or in related occupations should incl work using AS/400. Job loc: Lawrenceville, GA. Send resume or apply in person at: GADOL, JO#GA 6091244, 1535 Atkinson Rd, Lawrenceville, GA 30243-5601 or nearest Dept of Labor Field Service Office.

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Software Engineer (Legacy Systems-VAX computers): Structured systems analysis, design, devlpm't, testing, implementation & integration of complex on-line transaction processing distribution, using 2 other MIS application systems in a multi-hardware/multi-software environ. Includ'g VAX cluster & VAX workstations using file systems, relational/network database mgmt systems, Third Generation Language (3GLs), Fourth Generation Languages (4GLs), forms packages & GUI front end tools. Design & devlpm't of mission critical client-server systems & migration of legacy systems to client-server architecture. Req: B.S. sci./comp. sci./engr'g (or equiv.) & 2 yrs exp in job offered or as programmer/systems analyst. Must have appropriate combination of skills as follows: 1 of A & 3 of B or 2 of A & 2 of B as follows: A) DBMS: Rdb, Oracle, Sybase; B) tools/languages: DECforms, DECdesign, CDD+, ACMS, C, DECwindows, Pathworks, PowerHouse, X-Windows/Motif, Digital Unix, RMS. High mobility preferred. (multiple positions). 40 hrs/wk; $48,000-$60,000/yr. Report/submit resume to PA Job Ctr at: Mr. James Mackin, Mgr., Office of Employment Security, 120 Merchant St., Ambridge, PA 15003. JO #8022127.

Principal Software Engineer responsible for the architecture, design and implementation of a client-server based, high performance Fraud Detection System for cellular and wireline phone industry. Duties to involve development in the following environments: C/C++, WindowsNT, Digital UNIX and ODBC. Engineering duties include design, coordination, and implementation of a cross-platform state of the art GUI with a consistent look and feel. Will work with asynchronous, thread-based programming techniques for flexibility and performance optimization and 3D viewing models and computer graphics animation with respect to data visualization. Will be responsible for management of the development environment under Windows NT including development and workgroup tool selection and knowledge as well as NT administration. Additionally, will act as a mentor to less senior engineers. Will work with Data volumes with data compression methods, Internet, and WWW Site development. Requirements are a Master of Computer Science with background in Computer Graphics/CAD and 3 yrs. exp. in job offered or 3 yrs. exp. as a Systems Design Engineer. 40 hr. work week. 8:15 am to 5:00 pm M-F. Salary: $80,017.60 per year. Location of position: Stow, MA. Send 2 copies of your resume to Case #70090, P.O. Box 8968, Boston, MA 02114 EOE. Applicants must be U.S. workers eligible to accept employment in the United States on a full-time basis.

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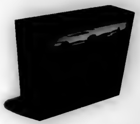

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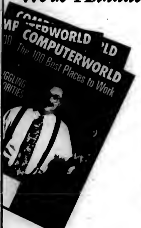

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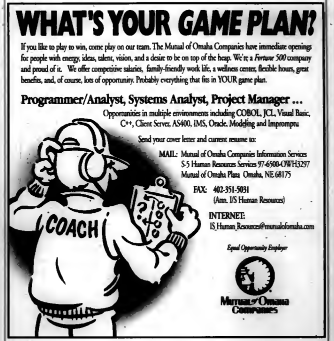

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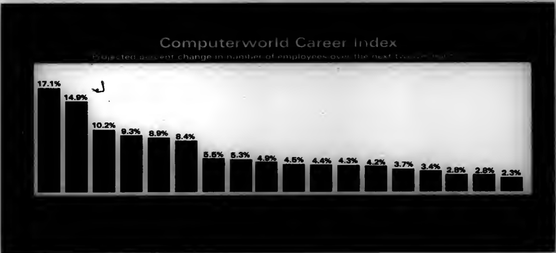

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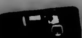

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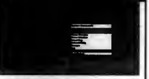

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The Week in Stocks

Gainers

P E R C E N T

Peak Technology Group	42.0
BBN Corp.(L)	16.5
Secure Computing Corp.	15.2
Egghead Discount Software	15.0
Business Objects(L)	14.3
[illegible]	[illegible]
[illegible]	10.2
Proteon Inc.	11.5

D O L L A R

IBM	16.13
Microsoft Corp.(H)	8.00
Compaq Computer Corp.	8.38
Intel Corp.	6.38
Peak Technology Group	5.25
[illegible] Corp.	5.00
Bell Atlantic Corp.	4.50
McAfee Associates	4.19

[illegible]

I N D U S T R Y   A L M A N A C

Management is hot

The latest Wall Street darling isn't an Internet start-up. It's a maker of decidedly unglitzy management tools for mainframes and client/server systems.

BMC Software, Inc. (Nasdaq:BMCS) since last summer has seen its share price increase more than 60% — from the low $30s to nearly $50 — as users buy up the Houston firm's mainframe utilities and flock to its line of newer client/server tools to manage distributed systems.

The continued interest influenced the decision by Soundview Financial Group, Inc. in Stamford, Conn., to put BMC on its list of stocks that have better-than-average upside potential.

Goldman, Sachs & Co. analyst Rick Sherlund upped his estimate for BMC's earnings by 5 cents for fiscal 1998, because BMC's product mix is shifting to higher-growth client/server products. And BMC management has improved the consistency of earnings so it won't need to strain at the end of each quarter to meet expectations, Sherlund says.

BMC last week announced earnings for fiscal 1997, with revenue jumping 31% from the previous fiscal year. Even more significant for investors, profits leaped 55% compared with the previous year. Earnings per share rose from $1.23 to $1.60 (see chart). "BMC's strength [in the market] comes from the choice of products it offers customers," says Brandon Mosler, an analyst at Illuminata, Inc. in New York. As users buy more mainframe MIPS, the mainframe business slowly has become a cash cow to help BMC push its client/server tools, he says.

"All major mainframe providers are doing well in this market, because users are locked in to these products," Mosler says.

But the company's growing success may have a backlash. Many BMC partners that have their own systems management suites that work with BMC products may soon see the company's popular agent technology as a competitor, Mosler warned in a recent report. — Tim Ouellette

UTILITIES DRAW CROWD

[illegible]

	FY 96*	FY 97*
Revenue	$428.9M	$563.2M
Profit	$105.6M	$163.9M
Earnings per share	$1.23	$1.60
Price per share	31 ⅛ (April 25)	42 ¼ (April 24)

*[illegible]

Exch	52-Week	Range		April 25 2 pm	Wk Net Change	Wk Pct Change
COMS	61.36	24.00	3COM Corp (L)	27.63	2.25	7.5
AIT	65.00	38.65	Ameritech Corp	38.50	1.63	2.8
ASND	80.25	36.13	Ascend Communications (L)	40.25	-0.63	1.5
T	63.38	37.13	AT&T (L)	31.50	-2.25	-6.7
BNYN	10.75	1.44	Banyan Systems Inc.	1.44	-0.69	32.4
BAY	36.88	15.38	Bay Networks Inc	16.13	1.38	9.2
BEL	77.00	43.50	Bell Atlantic Corp	64.25	4.50	3.5
BLS	47.63	35.25	BellSouth Corp	41.25	2.38	5.8
BRKT	42.23	6.75	Brooktrout Technology (L)	10.38	-0.13	1.2
CS	43.63	26.50	Cabletron Systems	50.38	1.00	-4.7
CSCC	91.23	23.88	Cascade Communications	27.25	-0.38	1.4
CGRM	24.00	8.88	Centigram Communications	6.75	-0.50	-4.9
CSCO	75.75	44.75	Cisco Systems Inc	47.38	1.25	2.6
CLIX	8.25	1.88	Compression Labs Inc	3.31	0.00	0.0
CMNT	10.50	4.73	Computer Network Tech	5.19	0.13	2.4
XCOM	12.75	4.15	CrossComm	7.69	0.31	3.9
DIGI	33.00	13.63	DSC Communications	16.63	1.38	7.6
FORE	44.75	10.50	FORE Systems Inc	11.75	1.88	13.8
GDC	18.88	6.13	General DataComm Inds	6.63	-0.38	3.4
GSX	46.75	00.13	General Signal Networks	38.75	1.25	3.3
GTE	49.38	37.75	GTE Corp	45.11	1.00	2.3
LU	64.63	00.63	Lucent Tech	55.38	6.00	1.6
MADGF	14.88	4.50	Madge Networks NV (L)	5.00	5.00	25.6
MCIC	36.00	22.38	MCI Communications Corp (H)	37.44	-0.44	1.2
MNPI	27.88	5.50	Microcom Inc	16.00	0.13	0.8
NETM	18.88	2.50	NetManage Inc (L)	2.38	-0.38	14.6
NTRX	10.88	2.13	Netrix Corp (L)	2.38	-0.13	5.0
NCDI	15.25	2.88	Network Computing Devices	9.75	-0.63	-6.0
NWK	30.00	11.13	Network Equipment Tech	13.25	-0.13	-0.6
NETG	20.25	15.25	Network General	11.50	0.00	0.0
NN	33.25	20.25	Newbridge Networks Corp	29.38	-0.50	-1.3
NT	77.00	45.00	Northern Telecom Ltd	30.38	4.13	0.2
NOVL	15.63	7.38	Novell Inc. (L)	7.00	1.00	00.0
NYN	33.23	42.00	Nynex Corp	49.25	3.00	11.3
OCTL	31.75	13.50	Octel Communications Corp	16.63	0.00	0.0
ODSI	31.50	9.75	Optical Data Systems Inc	12.25	6.00	4.5
PCTL	41.25	6.63	PictureTel Corp (L)	9.63	1.00	30.4
PTON	8.50	1.31	Proteon Inc	1.81	0.19	11.5
RACO	1.00	2.44	Racotek Inc. (L)	2.63	0.00	0.0
RETX	10.88	3.38	Retix	1.88	0.25	-6.1
SBC	58.25	46.00	SBC Communications	51.88	0.88	1.7
SFA	20.38	12.88	Scientific Atlanta Inc	15.00	0.50	0.0
SHVA	37.23	8.25	Shiva Corp	9.38	0.25	2.9
FON	46.00	34.88	Sprint Corp	42.88	1.63	-3.7
SMSC	18.75	0.23	Standard Microsystems Corp	8.88	1.25	12.3
USW	37.25	27.25	U S West Inc.	35.13	1.00	3.1
USRX	105.38	30.75	US Robotics (L)	47.50	5.00	-6.9
XIRC	33.13	0.75	Xircom (L)	6.75	1.00	13.0
XYLN	76.00	12.38	Xylan Corp (L)	14.30	1.00	-8.3
AALR	15.25	4.13	Advanced Logic Research	6.13	0.38	4.3
AAPL	00.00	15.13	Apple Computer Inc	17.00	1.00	-5.7
ASTA	8.50	3.94	AST Research Inc	3.13	0.00	0.0
CPQ	87.88	40.50	Compaq Computer Corp	79.00	0.38	0.0
DELL	80.38	20.23	Dell Computer Corp	79.13	1.25	1.6
GATE	66.63	31.75	Gateway 2000 Inc	54.00	1.25	-2.3
HWP	60.00	37.35	Hewlett Packard Co	49.25	-0.88	1.7
MUEI	25.00	8.75	Micron Electronics Inc.	00.00	1.50	-5.0
NIPNY	65.00	47.50	NEC America	00.00	1.13	1.9
SGI	30.13	12.63	Silicon Graphics (L)	13.30	-0.25	1.8
SUNW	25.13	55.00	Sun Microsystems Inc	27.00	0.25	0.0
AMH	14.38	8.11	Amdahl Corp	6.13	-0.75	-8.5
DGN	20.25	9.00	Data General Corp	17.75	-0.25	1.4
DEC	63.25	25.00	Digital Equipment Corp	28.88	1.38	0.9
IBM	170.13	89.11	IBM	152.50	16.13	10.2
MDCD	20.25	3.80	Meridian Data Inc (L)	1.50	-0.63	-15.2
NETF	0.15	1.25	NetFrame	1.25	0.00	20.6
SQNT	30.13	10.00	Sequent Computer Sys	16.00	-0.13	-0.8
SEQS	4.88	1.38	Sequoia Systems Inc	2.50	0.13	5.3
SRA	55.13	16.63	Stratus Computer Inc	35.15	4.13	13.8
TDM	15.25	8.88	Tandem Computers Inc	12.50	-0.00	-5.8
UIS	9.13	5.50	Unisys Corp	6.19	0.13	2.1
ADBE	45.13	28.50	Adobe Systems Inc	29.11	1.75	-4.3
AMSWA	7.81	3.75	American Software Inc	6.00	-0.13	5.0
APLX	40.00	3.38	Applix Inc	3.00	1.44	-29.9
ARSW	82.75	17.00	Arbor Software (L)	00.63	-2.88	10.3
ADSK	43.23	18.50	Autodesk Inc	37.38	0.23	0.8
BGSS	37.50	14.00	BGS Systems Inc	31.00	0.25	0.8
BMCS	31.08	25.38	BMC Software Inc	42.65	-2.38	5.2
BOOL	23.00	4.13	Boole and Babbage (L)	21.13	1.63	7.1
BORL	20.25	4.75	Borland Int'l Inc.	6.75	-0.19	2.7
BOBJY	55.50	3.00	Business Objects (L)	9.50	1.38	14.3
CAYN	9.75	3.19	Cayenne Software Inc (L)	1.16	-0.56	15.0
CNTR	8.75	1.00	Centura Software (L)	2.25	-0.38	21.7
COGNF	39.50	18.25	Cognos Inc.	25.63	1.00	4.1
CA	67.38	37.25	Computer Associates	47.38	3.00	0.0
CVN	35.25	3.13	Computervision Corp	3.50	0.00	0.0
CPWR	36.75	13.23	Compuware Corp (H)	38.75	1.00	3.4
CSRE	32.88	10.75	Comshare Inc	12.00	1.88	33.5
COSFF	12.88	5.00	Corel Corp (L)	3.63	-0.38	-8.3
DWTI	7.63	2.63	Dataware Technologies Inc	3.38	-0.13	-4.0
FILE	58.50	9.00	FileNet Corp	13.25	1.13	-9.1
FRTE	81.75	8.38	Forte Software (L)	8.38	-0.38	10.0
FTPS	34.38	4.44	FTP Software Inc	6.63	-0.88	5.5
HUMCF	43.63	22.00	Hummingbird Comm Ltd (L)	26.25	1.25	5.0
HYSW	26.56	16.25	Hyperion Software Corp	15.38	1.75	10.2
IRIC	16.36	11.00	Information Resources	15.00	-0.00	-4.0
IFMX	31.13	6.81	Informix Corp	6.81	0.94	12.1
INGR	15.13	6.63	Intergraph Corp (L)	6.65	1.61	31.5
LEAF	9.38	1.13	Interleaf Inc	1.31	-0.13	-8.7
ISLI	78.50	5.25	Intersolv Inc. (L)	7.13	0.13	3.8
INTU	35.75	20.88	Intuit Inc	29.50	1.15	5.0
TLC	30.31	5.50	Learning Co (The)	6.25	-0.18	5.7
LGWX	22.23	6.13	Logic Works (L)	5.19	0.10	3.8
MAPS	18.00	7.00	MapInfo Corp	10.38	1.15	12.3
MATH	8.63	2.19	MathSoft	2.19	0.38	16.7
MCAF	65.50	27.83	McAfee Associates	88.13	4.10	0.5
MENT	18.50	6.00	Mentor Graphics (L)	1.00	-0.11	-6.3
MIFGY	32.00	9.75	Micro Focus (H)	31.25	-0.88	-4.0
MCXI	10.63	4.00	Micrografx Inc	5.31	-0.09	-33.5
MSFT	115.75	53.75	Microsoft Corp (H)	114.63	8.00	3.5
ORCL	31.88	32.00	Oracle Corp	38.63	1.88	5.1
PMTC	64.25	34.83	Parametric Technology	41.88	0.88	2.1
PARQ	18.63	1.16	ParcPlace Systems Inc	1.38	0.00	0.0
PSFT	00.75	28.23	PeopleSoft	39.63	4.50	31.2
PTEC	20.38	11.13	Phoenix Technologies (L)	11.00	0.13	1.1
PSQL	13.75	3.50	Platinum Software	6.00	-2.00	26.7
PLAT	18.75	5.25	Platinum Technology	11.38	-0.75	-6.3
PRGS	25.00	12.13	Progress Software Corp	15.88	-0.88	3.1
RNBO	38.00	13.75	Rainbow Technologies Inc. (L)	14.63	-0.88	5.6
REDB	61.50	8.38	Red Brick Systems Inc.	6.38	-0.38	-5.6

Exch	52-Week	Range		April 25 2 pm	Wk Net Change	Wk Pct Change
SAPE	58.25	09.25	Sapient Corp	54.25	-2.75	7.4
SCOC	6.13	4.25	SCO Inc	4.44	-0.38	3.8
SDTI	54.50	33.00	Security Dynamics Tech	27.50	-1.50	-5.0
SOTA	38.75	8.88	State of the Art	9.81	0.31	3.3
SSW	81.38	27.25	Sterling Software Inc	30.13	1.75	6.2
SDRC	34.00	13.00	Structural Dynamics Research	36.88	-0.75	-3.5
SYBS	27.75	15.13	Sybase Inc	15.56	0.00	0.0
SYMC	18.38	8.73	Symantec Corp.	19.13	1.69	11.4
SNPS	00.00	21.75	Synopsys	28.50	-0.13	-0.6
SSAX	25.50	5.38	System Software Assoc.	4.25	-0.06	-1.6
SYSF	38.00	7.63	Systemsoft Corp	8.00	-0.63	-7.2
TRUV	9.38	1.75	Truevision Corp (L)	1.75	-0.44	-20.0
VIEW	17.50	8.88	ViewLogic Systems	15.75	-0.94	-6.4
VMRK	12.63	8.88	VMark Software Inc.	6.50	-0.13	1.9
WALK	10.68	0.08	Walker Interactive Systems	11.75	-0.63	-5.1
WALL	27.50	12.25	Wall Data Inc.	18.88	-0.88	-3.0
WANG	20.13	15.88	Wang Laboratories Inc.	10.75	-0.38	2.6
AOL	40.50	22.00	America On-Line	03.50	1.75	1.9
BBN	00.75	15.13	BBN Corp (L)	18.00	2.63	10.5
CSRV	32.50	0.63	CompuServe Corp.	0.75	-0.00	-3.7
EDFY	55.75	0.80	Edify Corp	11.50	1.50	10.7
LCOS	22.75	5.75	Lycos Inc.	12.38	-0.63	-4.8
NETC	44.50	3.00	Netcom On-Line	9.00	1.26	-11.3
NSCP	75.25	25.00	Netscape Comm Corp (L)	26.00	1.63	-5.8
OMKT	42.25	9.58	Open Market Inc (L)	8.50	1.50	-00.1
PSIX	19.38	3.88	PSINet (L)	5.75	-0.63	0.8
QDEK	17.38	2.00	Quarterdeck Corp	2.44	-0.25	-9.5
RAPT	38.38	8.80	Raptor Systems (L)	11.33	-0.15	-4.1
SCUR	38.25	4.75	Secure Computing Corp.	8.88	0.88	15.2
SPYG	34.88	0.00	Spyglass Inc	7.25	0.50	3.5
YHOO	37.36	15.00	Yahoo! Inc	30.33	-0.94	-3.0
AMD	38.80	10.25	Advanced Micro Devices	40.75	2.75	7.2
ADI	29.00	12.75	Analog Devices Inc	25.03	1.15	-4.5
CHPS	00.00	8.35	Chips and Technologies (L)	8.31	-1.50	-19.3
CRUS	25.25	8.50	Cirrus Logic (L)	8.88	-2.69	-23.9
CY	16.83	9.11	Cypress Semiconductor Corp	12.75	-0.50	-3.8
CYRX	38.38	11.50	Cyrix	38.38	-2.00	-8.6
INTC	165.00	64.33	Intel Corp	145.50	0.00	0.0
LSCC	54.88	38.75	Lattice Semiconductor	53.00	1.75	3.3
LSI	42.50	17.38	LSI Logic Corp	36.25	1.38	4.0
MCRL	41.50	12.88	Micrel Semiconductor Inc	32.25	-4.00	12.2
MU	45.25	30.00	Micron Technology	34.25	-2.50	-6.8
MOT	69.75	44.13	Motorola Inc	56.75	-1.00	1.2
NSM	32.25	13.00	National Semiconductor	23.25	-4.63	-16.8
TXN	89.38	40.50	Texas Instruments	82.03	-1.25	-1.5
VLSI	09.25	10.38	VLSI Technology	18.88	-0.60	-3.0
XLNX	53.00	24.50	Xilinx	38.65	-0.00	-0.8
ZLG	40.38	14.38	Zilog Inc.	18.50	-5.25	-22.0
ADPT	46.88	17.38	Adaptec Inc.	34.25	-0.64	1.0
APCC	31.50	8.88	American Power Conversion	18.00	-4.00	-27.3
CBEX	7.88	1.19	Cambex Corp (L)	1.19	0.00	0.0
CREAF	15.13	3.50	Creative Technology Ltd.	13.75	0.88	4.0
RACE	34.50	4.13	Data Race Inc	11.00	1.13	8.0
DTM	12.50	5.50	Dataram Corp	8.63	-0.88	-8.3
EMC	61.75	00.50	EMC Corp	34.00	-1.38	-3.2
EMLX	21.38	12.88	Emulex Corp	17.25	-0.25	3.4
ESCC	80.38	19.00	Evans and Sutherland	22.88	-0.13	-0.5
EXBT	22.75	9.50	Exabyte	12.75	-1.13	-8.1
INSLF	4.13	1.31	Intelligent Info. Systems	1.31	-0.06	-4.5
IOM	38.13	22.63	Iomega Corp	16.25	1.25	-7.0
IPLS	8.25	1.25	IPL Systems Inc	1.75	0.13	7.2
KMAG	37.50	17.63	Komag Inc.	23.98	-3.13	-10.8
MTSI	38.75	12.88	Micro Touch Systems Inc.	18.38	-0.25	-1.3
PEAK	27.88	8.50	Peak Technology Group	17.75	5.25	42.0
PNCL	12.00	1.25	Pinnacle Micro Inc. (L)	1.25	-0.25	16.3
AQM	6.75	3.13	QMS Inc.	3.35	1.00	-24.3
QNTM	48.13	18.38	Quantum Corp	38.25	-6.63	-13.5
RDUS	4.88	0.88	Radius Inc.	0.38	-0.06	-14.3
SEG	56.25	18.15	Seagate Technology	43.25	-1.25	-0.8
STK	54.00	34.88	Storage Technology	34.00	-4.63	16.0
STLC	8.75	0.44	StreamLogic Corp. (L)	0.53	0.03	6.3
TEK	63.75	35.88	Tektronix Inc.	52.13	-0.86	-1.7
WDC	77.25	19.00	Western Digital Corp	30.75	6.38	-10.1
XRX	83.25	44.83	Xerox Corp	58.75	0.00	0.0
AMSY	37.13	13.75	American Mgmt. Systems	23.88	1.63	7.5
ANLY	80.60	17.50	Analysts Int'l	25.25	0.88	3.8
AUD	45.75	35.63	Auto Data Processing	42.63	-0.25	-0.8
BDMF	00.75	19.75	BDM International Inc	23.63	-0.15	-0.5
CATP	37.25	18.75	Cambridge Tech. Partners	23.50	-2.15	-8.3
CEN	54.88	29.38	Ceridian Corp.	30.38	-1.38	-4.7
CDO	33.00	21.75	Comdisco Inc.	28.15	1.88	0.8
CPU	00.00	33.25	CompUSA Inc	13.15	0.25	1.5
CHRZ	14.00	18.00	Computer Horizons	41.38	3.25	8.5
CSC	80.38	38.38	Computer Sciences (L)	81.25	-0.15	-0.2
TSK	47.00	23.25	Computer Task Group	65.63	-0.75	-1.7
CDAT	08.63	15.25	Control Data Systems Inc	18.88	1.75	-12.0
EGGS	15.88	3.63	Egghead Discount Software	4.31	0.56	15.0
EDS	63.38	35.00	Electronic Data Systems Corp.	33.00	-4.18	-16.2
INAC	40.63	15.38	Inacom Corp	21.63	5.88	15.2
INEL	11.00	2.81	Intelligent Electronics	2.94	-0.19	-6.0
KEA	38.38	18.50	Keane Inc. (H)	42.38	0.00	0.0
MICA	23.00	0.50	MicroAge Inc.	12.60	0.00	-4.2
PAYX	69.63	38.25	Paychex	42.13	-4.88	-8.8
PMS	89.50	33.13	Policy Management Sys.	43.75	-0.15	-0.3
REY	00.63	18.63	Reynolds and Reynolds (L)	18.63	-2.88	-17.2
SCBI	00.50	14.44	SCB Computer Tech. Inc	18.25	1.25	7.4
SEIC	26.38	37.75	SEI Corp	19.75	-0.38	1.9
SMED	71.38	38.75	Shared Medical Systems (L)	40.50	2.50	6.6
SSPE	23.50	13.38	Software Spectrum Inc. (L)	13.75	0.64	5.3
SNDT	50.75	31.25	SunGard Data Systems	44.00	0.75	1.7
VST	00.75	6.50	VanStar Corp	7.08	-0.50	-6.7

KEY: (H) — New annual high reached in period (L) — New annual low reached in period

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Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

Beanie blitz prompts speedy revamp of order entry system

CONTINUED FROM PAGE 1

for an unlimited budget.

"We couldn't spare any expense to make sure order entry will fly on the system when we go live," said Chris Johnson, director of MIS at Ty. "I had an open door to get the best thing that would work. We spent about $750,000 to $1 million at least" on training and the new system.

The company settled upon a lesser-known order entry system designed for high-volume businesses by Design Data Systems, Inc. (DDS) in Largo, Fla. The software was designed to run on Oracle Corp.'s database, in Ty's case Workgroup 7.2.

Ty's volume of order calls peaked at more than 100,000 per day. The company had to more than double its customer service staff.

When the Beanie Baby craze first started to take off in December 1995, Ty was running a DOS-based order entry system from Great Plains Software, Inc. that began to max out at about 100 order entry clerks. The outdated system forced order takers to scroll through pages of forms for each customer and enter every bit of information manually.

"I kind of knew the upgrade was inevitable. We started to see the pains a year ago," Johnson said. "The order-to-shipment time now is two to four weeks. With the new system, if the stock is fine, hopefully the order entry response will drop by half."

As the volume of order calls each day began to reach the thousands, peaking at more than 100,000 per day, Ty had to more than double the number of customer service personnel. Staffers that take the calls now total more than 250.

Ty last summer began shopping for a system that would not only cut the ordering steps and handle the transaction load, but also automate shipping information and billing. The new system does that and has automated several steps of the order process, including a credit check and data entry for separate invoices.

"The biggest design part we needed was the interface. It had to be easy to use because of the number of calls we were handling," Johnson said. "People have to be able to look up orders fast [in real time] and click back and forth between windows. Customers need information on shipping dates fast, and the user interface needs to support that."

The DDS software will allow customer service representatives to look up order status and the history of an order with the click of a mouse.

Once Ty settled on the system, the IS department went into overdrive implementing it. "I needed [a new system] so fast, I cut off several months from the normal planning time," Johnson said. "We went from six months to two. We are now preparing to go live in a couple of weeks."

With assistance from DDS, Ty was able to ward off many problems such as data conversion issues with the database, fine-tuning the applications and dealing with the massive increase in volume. "I think the [normal] six- to eight-month [implementation] time guarantees everything is going to work when you go live. But [obviously] it can happen in two months, because we are making it happen," Johnson said.

Ty did it by cutting much of the planning stages and bypassing much of the meticulous testing involved in such projects.

Adam Thier, an analyst at Meta Group, Inc. in Stamford, Conn., said that because Ty didn't have time to test the system, it should watch it carefully.

"These systems are designed and optimized for data in, not data out," Thier said. "They have to watch the interfaces to inventory very carefully." If not, he said, Ty may see more Beanie Baby orders coming in than the factories can produce.

Training was also key. As DOS users, many of the order entry personnel were lost when it came to Windows and didn't know how to use a mouse. Because of the tight schedule, training is being outsourced and done in-house.

Sandra Padgett, who handles order entries at Ty, has already tested the new system. She said there is a world of difference from the system she now uses.

"The way we are going to look up the information on customers will take half as much time, and the new system enters data for us that we don't have to key in ourselves," Padgett said. □

Consumer frenzy overloads phones

Retailers weren't the only ones who besieged toy maker Ty's headquarters looking for more Beanie Babies.

Consumers also were tying up telephone lines looking for the pint-size plush puppies, platypus, ponies and penguins, pushing calls up to 100,000 per day at times.

To handle the flood, Ty added new phone lines tied to an automated system to keep callers abreast of their local Beanie Baby carriers.

Consumers looking for information about where they can collect the 70 toys (29 others have been retired) can call (888) 628-6111. A complete list of the Beanie Baby collection can be found at www.ty.com. No online ordering systems are planned at this time.

But Chris Johnson, Ty's director of MIS, said the company is considering adding an electronic data interchange system for toy vendors and a World Wide Web-based ordering system for retailers.

— Randy Weston

Users skittish about videoconferencing

▶ *Vendors forge ahead with 'net-based products*

By Matt Hamblen

A NEW GENERATION of Internet-based videoconferencing products has hit the market, but users are reluctant to adopt the technology, citing network traffic headaches, performance problems and possible security snafus.

In fact, analysts said they doubt there will be much of a corporate market for desktop videoconferencing or its cousin, real-time data collaboration, in the next two years.

Regardless, Microsoft Corp. in Redmond, Wash., will forge ahead with its attack on the Internet-based videoconferencing software market today by releasing Version 2.0 of NetMeeting. And last week, White Pine Software, Inc. in Nashua, N.H., came out with Version 3.0 of CU-SeeMe.

"I like the idea of videoconferencing, but I wonder how long it will take companies to adopt," said Elliot Gold, a videoconferencing analyst and president of Telespan Publications in Altadena, Calif. "I fear mainline corporate people won't be able to make the cultural shift" to talking face to face over the Internet or even collaborating on documents in real time, he said.

But Carlo Pensyl, a beta tester of NetMeeting 2.0 at Deere & Co. in Moline, Ill., said the product has "very high business potential" but will also cause the company to rethink the networks needed to support the system.

White Pine's CU-SeeMe software allows videoconferencing among several users at once

Deere could use NetMeeting to help roll out two projects: companywide migration from several electronic-mail systems to Microsoft Exchange and deployment of an accounting solution. Information systems workers scattered in different locations could use the system to collaborate over code, diagrams and documents in real time.

Pensyl said NetMeeting was chosen because of Microsoft's reputation and because the product is expected to be compatible with a range of future products.

However, Pensyl said he will need to find third-party software that creates an opening in the company's firewall to allow transmission via the Internet. One analyst said the firewall concern is a major limitation on such collaboration products, but other analysts said software to solve that problem will be available soon.

ACADEMIC USES

Several analysts said CU-SeeMe 3.0 might not catch on in the business world, because White Pine is a small company that has sold previous versions mainly to the academic world.

Still, CU-SeeMe has an advantage over NetMeeting 2.0 with its ability to allow videoconferencing with eight to 24 participants at once. NetMeeting provides only point-to-point videoconferencing, allowing voice and video communications between two parties at a time.

Microsoft officials said that NetMeeting's real strength is data collaboration, not videoconferencing. Data collaboration allows documents or drawings to be shared by as many as 30 desktops at once over the Internet. □

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THERE IS ONE THING
YOU WON'T MISS WITH
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COMMENTARY

Challenge to Sun: Wall off Java

David Coursey

Have you seen the Great Wall of Java over at Sun? No? That's because no one has. It's the wall that should separate the developers at JavaSoft who build the Java language and tools from the developers at Sun who intend to build a profitable Java applications business.

My suggestion for Sun comes from the Good for the Goose/Good for the Gander Department, and it relates to the "Chinese wall" that supposedly once separated Microsoft applications developers from Microsoft operating systems builders.

For a time, Microsoft said such a wall really existed within the company. Then Microsoft defended itself against several media reports to the contrary and finally admitted that no such separation existed.

I'm thinking about this because I just finished moderating a panel discussion involving two JavaSoft executives who touted the wonders of "100% Java" (Every time I hear that phrase, I expect Mrs. Olson, the Folgers Coffee lady, to intone, "That's the richest kind" in a phony Swedish accent. Or maybe it's "hand-picked by Juan Valdez" in Colombia).

GUARANTEE

It's that sort of a concept. You see, 100% Java is supposed to assure compatibility and a level playing field for Java developers. I get the feeling that the concept is engineered so Microsoft, whatever it does, will never qualify.

But 100% Java also had the JavaSoft executives telling the audience that Sun wouldn't use its position as owner of Java to unfair advantage.

"So Sun will have the same chance of screwing up that IBM or Novell might enjoy?" I asked the executives.

After some initial hemming and hawing, the answer was "yes." But the Sun people don't like to think of things that way.

It took me a minute to lift my jaw from the floor.

Stop me when I'm wrong, but I believe the executives said that despite investing millions of dollars in a subsidiary (JavaSoft) that has only a small chance of earning significant revenue on its own, Sun won't use what it has learned to stack the deck in favor of its applications business.

Do you suppose the shareholders know about this?

Now, I'm as much for fair treatment of competitors as anyone else, but if Sun doesn't make a lot of money from Java applications and related hardware, it might not be willing or able to fully fund Java's development as a platform.

If Sun is serious about this good-neighbor policy — and fair competition is a laudable goal worthy of a bumper sticker just like those imploring us to "Visualize World Peace" — the company ought to do what Microsoft never did: Create a real wall between JavaSoft and the rest of the organization. Prevent engineers from leaving JavaSoft and going over to Sun in a greater proportion than they go to any other company. Do the same with marketers, executives and anyone else who's intimately familiar with the Java development road map.

Sun should make the document describing these practices public and regularly report on its compliance.

As I said, I'm not sure this is a great idea for Sun, but it would certainly earn the company a huge measure of respect from third-party developers.

And I understand the view is really great from the top of the wall. □

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Just say no to pushers

Frank Hayes

Push is a bad idea. No, wait, let me take that back. Push isn't just bad. Push is *destructive*. It may be the most costly, damaging and genuinely corrosive technology that corporate IS shops have ever seen. Push burns up the most valuable resources your organization has.

It turns a billion-dollar information technology investment into an engine that demolishes productivity. It trivializes your employees and puts a corporate stamp of approval on waste.

And best of all — it's free!

For the benefit of anyone who has dozed through or skipped over the many presentations and articles glorifying push technology, it's something like TV on your PC.

The idea is that service providers — outfits such as PointCast and BackWeb — broadcast information straight to users' screens.

Users can customize the information they get, which runs the gamut from news, weather and stock quotes to sports scores, horoscopes and winning lottery numbers. And it's all continuously updated during the time the user's network connection isn't being used for something else.

Some corporate IS managers won't let push services through their firewalls.

They're concerned about the security of their networks, but I think they've missed the point. A security catastrophe is the least of their worries.

After all, what is an organization's most valuable asset? The attention and brainpower of its employees — the people whose work pays the bills.

And what is an IS shop's most valuable asset? Network bandwidth — the spare room on the intranet that makes distributed systems possible. IS depends on bandwidth to work as fast as possible.

And what does push technology chew up, fritter away and demolish with wild abandon? Employees' time and network bandwidth.

You've spent huge sums of money to build a corporate network. It should be moving corporate information that allows your employees to create better products, happier customers and bigger profits.

But push technology elbows real corporate information out of the way and in its place shoves a load of info-junk down the wire.

Exactly how will junk-food-for-the-mind such as horoscopes, baseball scores and lottery numbers help your users do their jobs? Why are your users playing the stock market on company time? And how often does every employee need to know if it's raining or the latest on the Unabomber?

Then there are the ads that make push services "free." Do your users really need commercials shoved in their faces eight hours a day?

NO TRIVIA, PLEASE

Push wastes time. It's distracting. And it butchers morale by drowning users in trivia when what they really want is information.

And if the good of your users isn't motivation enough, consider this: When your company's CEO wakes up one morning to find all the employees sitting around watching their own personal TV shows, who's going to take the fall for letting the pushers in?

Of course, there's nothing wrong with employees spending their coffee breaks or lunch hours on the kind of stuff pushers offer.

Matter of fact, plenty of them do, with nothing more costly than browsing a Web site or three. So why should you let push blow away huge quantities of your scarcest corporate resources the whole business day long? □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes @cw.com.*

The Back Page

alt.cw

Dispatches & images from the fringes of the electronic frontier

Computerworld INDEX

Percentage of hospitals with no plans to fix their year 2000 problem:	18%
Percentage of organizations with a shortage of year 2000 project workers:	45%
Average number of hours to train a groupware user:	4.4
Average number of hours to train an intranet user:	2.4
Number of diskettes America Online sent out in 1996:	150M
U.S. online advertising spending in 1996:	$301M
Total U.S. advertising spending in 1996:	$175B
Percentage of American adults who said they would never use a credit card to buy something over the Internet:	78%

Sources: Gordon & Glickson, Chicago; Meta Group, Inc., Stamford, Conn.; Creative Networks, Inc., Palo Alto, Calif.; The Wall Street Journal, New York; Jupiter Communications Co., New York; Merrill Lynch Forum, New York

Buzzwords

- **Basement-area network: a small LAN that links several household PCs.**
- **Prairie dogging: when people's heads pop up over their cubicle walls to see what all the commotion is about.**
- **Sigverts: small advertisements in Usenet signatures.**

Source: Wired, San Francisco

With notebook computers getting faster – and hotter – chips, NMB Technologies in Chatsworth, Calif., has come out with a tiny fan suited for spot-cooling of microprocessors. The 1204KL fan measures 30mm by 30mm by 10mm and weighs 8.5 grams. The 12V fan can also be used in laptop docking stations and set-top boxss. Ths fans cost $8 to $10 each in OEM quantities.

Rube would be proud

Engineering students from the University of Texas at Austin won the National Rube Goldberg Contest at Purdue University earlier this month. The goal: Build the most complicated contraption to load a CD-ROM drive, using at least 20 steps and no human intervention. The annual contest honors Goldberg, the late cartoonist known for drawing outlandish machines for simple tasks. The winning entry used 35 steps involving fuzzy dice, a windmill, a waterwheel, a mousetrap, a pendulum, a scuba tank and a bucket of water. It took a minute and a half to load the CD.

Inside Lines

[illegible]

IBM's Deep Blue, an RS/6000 SP, will try again to defeat chess grandmaster Garry Kasparov this week in New York. Usenet posters overwhelmingly support Kasparov, even though the computer pulled out a surprise Game 1 victory last year before eventually losing. Some vital statistics: Kasparov weighs 176 pounds, Deep Blue, 1.4 tons; Kasparov uses 50 billion neurons, while Deep Blue is powered by 32 processors; and Kasparov can perform 2 moves per second, while Deep Blue can perform 200 million moves in the same time frame. Web surfers can follow the six-game match at www.chess.ibm.com. The match will end May 11.

Earhart follower tracked over the 'net

Linda Finch [illegible] footsteps and attempting to [illegible] Earhart, she has been [illegible] She took off again this week, [illegible] Pakistan, to Calcutta, India. While the [illegible] updated every 15 minutes.

[illegible]

Digital and Sun [illegible] preparing to [illegible] Unix [illegible] high-end [illegible]

It doesn't add up

[illegible]

[illegible]

[illegible]

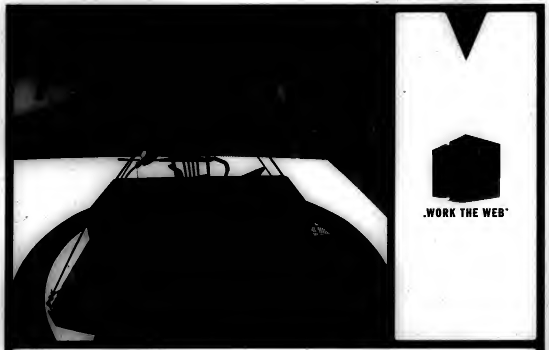
[illegible]

[illegible] long-term [illegible] high-end router that [illegible] which is due to [illegible] places to "address [illegible]" [illegible] to provide details.

On the road again

When you travel 150 days out of the year — as consultants such as Gartner Group's Chuck White do — where do you call home? White has it down to a science: He has his mail forwarded to hotel lobbies. And for companionship when he returns home, White keeps a ceramic cat at his primary residence. Low maintenance.

Do you have to blank your monitor so visitors aren't distracted by constant news updates on the PointCast Network? Even officials at PointCast recognize the intrusive attraction of their Internet broadcasts. During the introduction last week of "Manage IT," a special channel carrying news on network and system management topics, the PointCast sales vice president had to kill his demo to regain the audience's attention. Before you get sucked in to 'net news, send a tip of your own to news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.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